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Acid Deposition System (ADS) for Statistical Reporting System Design and User's Code Manual

Battelle Pacific Northwest Labs., Richland, WA

Prepared for

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System Design and User's Code Manual

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This document is a general purpose description of the ADS data management system. It explains to acid precipitation monitoring network managers how their data is being merged with that from other networks. For the researcher, this document defines what information is available in ADS. It is not a user's guide, nor is it a programmer's maintenance guide, however, both the user and the programmer should read it.

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The design, implementation and documentation of any data base integrating data collected by different organizations for different purposes is never an easy task. As the ADS data base designers, we are fortunate to have had the support and advice of numerous individuals who knew the problems connected with precipitation chemistry data collection, analyses and reporting. Peter Finkelstein and Gardner Evans of U.S. EPA's Environmental Monitoring Systems Laboratory, Research Triangle Park, directed our efforts. Malcolm Still (CANSAP), Jim Gibson (NADP), Dave Bigelow (NADP), Walter Chan (APIOS), Terry Dana (MAP3S/PCN), Alain Sirois (CANSAP), Mary Ann Allan (EPRI) and John Jansen (UAPSP) reviewed draft system designs. The ADS is better because of their efforts. Sharon Popp graciously prompted us to produce a good document and was willing to type our numerous revisions.

CONTENTS

1. PURPOSE OF THIS DOCUMENT 1.1

2. INTRODUCTION TO ADS. 2.1

3. ADS DATA INPUT 3.1

DEFINITION OF TRANSFER PROCEDURES. 3.1

NETWORK OPERATION UPDATES. 3.2

SITE DESCRIPTION UPDATES 3.2

SAMPLE DATA UPDATES. 3.2

4. ADS DATA BASE. 4.1

MAIN DATA FILES. 4.1

ANCILLARY FILES. 4.1

RECORD DESCRIPTION PROTOCOL. 4.3

SITE-SUMMARY-RECORD DESCRIPTION. 4.3

SAMPLE-DEFINITION-RECORD DESCRIPTION 4.9

COMPONENT-ANALYZED-RECORD DESCRIPTION. 4.19

SITE-HISTORY-RECORD DESCRIPTION. 4.23

NETWORK-ANALYSIS-PROTOCOL DESCRIPTION 4.24

5. ADS RETRIEVAL. 5.1

REQUESTING INFORMATION 5.2

PRINTED REPORTS. 5.2

DATA TAPE EXTRACTION 5.3

APPENDIX A - SUMMARY OF ADS RECORD DEFINITIONS. A.1

APPENDIX B - TABLES OF ADS VALID CODES FOR SELECTED DATA FIELDS B.1

APPENDIX C - NETWORK SITES INCLUDED IN ADS. C.1

APPENDIX D - INPUT DATA TRANSFER FORMATS FOR CONTRIBUTING NTEWORKS. . . D.1

APPENDIX E - STANDARD ADS REPORTS E.1

APPENDIX F - ADS OUTPUT TAPE FORMAT F.1

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ACID DEPOSITION SYSTEM (ADS)
FOR STATISTICAL REPORTING

1.0 PURPOSE OF THIS DOCUMENT

This document is a general purpose description of the ADS data management system. It explains to acid precipitation monitoring network managers how their data is being merged with that from other networks. For the researcher, this document defines what information is available in ADS. It is not a user's guide, nor is it a programmer's maintenance guide, however both the user and the programmer should read it.

The body of the document is rather general; we expect that it will not be revised in the near future. Chapter 2 describes the data base in general terms and discusses our design philosophy. Chapter 3 explains how data is added to ADS. Chapter 4 explains the data base design and defines the contents of each data field. Because ADS is combining information from several networks into a common format, it is essential that users of the data understand chapter 4. Chapter 5 explains how to obtain information from ADS.

The appendices contain material which is expected to change as more data and more networks are included in the system. We expect to revise and re-issue selected appendices on an annual basis.

Appendix A summarizes the ADS record definitions. It is intended primarily for use by ADS staff. The record definitions will change as the data base design is refined, but the basic definitions of the contents of the data fields will remain as described in the body of this report.

Appendix B summarizes valid codes for selected data fields. Addition of a new network to ADS causes modification of all the tables in Appendix B. Users of data extracted from ADS must use these tables to understand the data.

Appendix C summarizes the sites which are defined in the ADS site file. This list will expand as new networks are added or as new sites are added to existing networks.

Appendix D defines data tape formats which are acceptable for sending information to ADS. This appendix is of primary interest to network managers.

Appendix E describes printed reports available from ADS. The development of data summarization techniques for acid precipitation information is the primary research mission of the ADS staff, therefore, the contents of this appendix will change frequently.

Appendix F describes the information available to users on magnetic tape. This is the preferred method for users who desire individual sample data for multiple sites or substantial time periods. Appendix F contains the actual record definition used.

2.0 INTRODUCTION TO ADS

The EPA Acid Deposition System (ADS) for statistical reporting has been established at Pacific Northwest Laboratory (PNL) for the EPA. The goals and guidelines of the system are:

- To develop and provide statistical summaries of the spatial and temporal characteristics of acid deposition in North America.
- To provide a single place to obtain deposition monitoring data for North America.
- To have ADS coincide as close as possible with individual monitoring network information.
- To have monitoring data accessible to the general research community.

ADS is being designed and implemented as part of a project to develop and apply statistical procedures that accurately reflect the spatial and temporal characteristics of acid deposition in North America. The project requires that deposition data from multiple monitoring networks be combined into a common data format while preserving essential qualifiers associated with individual data items. Since such a combined data set did not exist, its development is included as part of the statistical reporting project. It is emphasized that ADS is designed to support the statistical reporting development and to serve as a resource for other researchers.

A primary goal is to facilitate convenient and quick response to data requests. This includes hard copy standard statistical summaries, detailed listings for small subsets of ADS, computer tapes of subsets of ADS and possibly direct dial-up interactive access. In all cases, retrieval requests will be processed on a timely basis, eventually within one or two days.

Our concept of a data management system is to use commercially available computer software as much as possible. We have selected DATATRIEVE, a query language developed by Digital Equipment Corporation for PDP 11's and VAX's. We will use it for about 90% of the computing on this project; previously developed in-house tape format conversion programs will account for the bulk of the remainder. This approach allows our staff to concentrate on the data rather than on the software which supports the data.

We know from experience with similar projects that the final design of the data base will evolve from our initial concepts. The computing resources we will use in ADS are very flexible. Redefinition of records by addition or deletion of fields is a relatively easy task. It often takes more time to document the new structure than it does to restructure the file.

A primary goal of ADS is to make it easy for the various networks to store and retrieve information in a centralized data base. We intend to work with the network managers to develop the easiest method for each network to send information to ADS. In discussions with network managers, we want to place the emphasis on the completeness of the information transferred. We do recognize that we may not be able to accommodate completely every network on their data input formats.

The ADS data base will be maintained on several index-sequential computer files with tape back up. DATATRIEVE running on a VAX 780 will allow interactive access to the data. The files are designed to optimize retrieval of information based on SITE, DATE, or COMPONENT. Other retrieval requests will require a sequential search of the data, increasing the retrieval time from seconds to minutes.

The data will be stored in a uniform format using common measurement units. The common units and associated conversion factors are shown in Appendix B, Table B.6 and Table B.7. If, for example, a network measures rain depth in inches, the inches will be converted to millimeters by a table as part of our data input procedure; output will be available in either form at the requester's option.

Since the data from all networks will be converted (if necessary) to a uniform system of measurement units as it is added to the data base, persons making retrieval requests will be given a range of output conversion options.

3.0 ADS DATA INPUT

Precipitation chemistry monitoring networks are the focal point for acquisition of data for the ADS data base. Networks that participate in the ADS data base are required to furnish detailed information concerning their network operation, quality assurance procedures, site descriptions, and chemical laboratory operation as well as actual sample data. Monitoring networks able to furnish the required documentation must, in addition, understand and comply with the ADS data input procedures described in this document and as amended by the ADS staff. Although individual sample precipitation, pH and ion species concentrations are central to ADS, other supporting information has equal importance. The major categories of information are discussed in this section.

Information required from each network consists of written documentation and computerized individual sample data. Written documentation includes a description of the monitoring network, network operation protocol, network quality assurance procedures, chemical laboratory procedures, data screening procedures, and individual site descriptors. Copies of key network documents, including published data reports if available, are required for ADS staff use. This written documentation provides the basic information to initiate a new network for inclusion in ADS. Computerized precipitation sample data become part of the ADS data base only after the supporting information is provided.

Transfer of network data to ADS involves definition of transfer procedures, network operation updates, site descriptions and routine sample updates. The procedures for each of these are agreed upon by the participating network coordinator and ADS data manager and must be consistent with this document. The transfer process assumes that all data received from a network have been subjected to internal network QA and QC checks and agrees with the network's own data base contents. The transfer process includes QA checks for the transfer but these checks are not equivalent to a network's internal QA and QC program.

DEFINITION OF TRANSFER PROCEDURES

Before a network contributes sample data to ADS, the material in this document (especially Section 4) is read by the network coordinator to introduce ADS's system design. The manual gives detailed definitions for all data items associated with site descriptions and sample records. Initial introduction of a network into ADS requires detailed information on the network operation, chemical analysis protocol and site definition. Appendix D includes forms for providing this information. After receiving and implementing this information in the ADS data base, a complete copy of the information as included in ADS is sent to the network for checking and approval. At the same time additional documentation not yet received from the network is requested.

The definition of the transfer process also includes procedures for sample data transfer. Since ADS uses a single data format for all networks, procedures to map a network's sample data format, including flags and comments, to ADS data format are required. Based on the information furnished by the network, the ADS data manager defines these procedures and sends them to the network coordinator for review and approval.

NETWORK OPERATION UPDATES

After initial introduction of a network into the ADS system, changes in network operation may occur. Field procedures or instruments may change, laboratory procedures may be modified or other network protocols may be modified. Such changes must be communicated to the ADS data manager before sample data affected by the change may be included in ADS. The information concerning changes must be stated as specific to individual sites, if applicable, and to a specific time of occurrence. It is the responsibility of the network to notify the ADS data manager if a change occurs. Forms are provided in Appendix D for communicating these updates. Network operation updates to ADS will be compiled and returned to the network to check and approve prior to a sample update.

SITE DESCRIPTION UPDATES

ADS includes provisions for maintaining both quantitative and qualitative (narrative) information for each site. The transfer process for updates to this information is the same as for network operation information. It is discussed separately to indicate the importance of the information. Each time there is a change in site operation, the form in Figure D.5 should be photocopied, completed and sent to the ADS data manager.

SAMPLE DATA UPDATES

Sample data updates to ADS are to be completed quarterly for each network. Before initiating a sample data update (including the first) for a network, the ADS data manager checks with the network concerning network operation updates. All transfers of sample data to ADS are in computerized form, either on magnetic tape (preferred) or computer punched cards. The exact tape characteristics and data form are specified in Appendix D.

Upon receipt of a sample data update, the ADS data manager transfers the data to a temporary file, and verifies that the transfer is correct. The verification includes a check on the total number of records transferred, and a comparison with a printed listing furnished by the network. The temporary file is then mapped into the ADS data format. Before placing the data into the ADS data base, a printer report suitable for confirmation of the transfer process is prepared, checked by the ADS data manager and sent to the network for approval.

4.0 ADS DATA BASE

MAIN DATA FILES

The ADS data base uses three main files: the SITE-SUMMARY file, the SAMPLE-DEFINITION file, and the COMPONENT-ANALYZED file.

There are several records per geographic location in the SITE-SUMMARY file. Each defines sampling conditions for a given time period at that location. The record with the highest revision number contains current information. The SITE-HISTORY file (discussed below) contains supporting narrative information.

There is one record per sample (e.g. month, week, or event) in the SAMPLE-DEFINITION file. The sample definitions are tied to the site summaries by the unique ADS-IDENT number. The special case of quality control samples will be handled by a code in this file.

There is one record per component analyzed per sample in the COMPONENT-ANALYZED file which is tied to the SAMPLE-DEFINITION file through the ADS-IDENT number, the ADS reference date, and the codes for the component (chemical species).

ANCILLARY FILES

There are two important ancillary files which contain relatively static information.

The SITE-HISTORY file contains information about the changes in the sampling protocol at each site. There are multiple records per geographic location in this file, one for each time there was a change in operating protocol at a site.

The NETWORK-ANALYSIS-PROTOCOL file contains information about the number and type of measurements normally performed on a sample, the instrument and technique used to measure the components, and a network supplied estimate of the accuracy of the measurements. There is one record per component measured at this site in this file.

There will be several other minor files in the data base. One will contain the expanded site definitions including mailing addresses, technical contact person, etc. Another will contain a brief history of each network. A series of files will be used as tables for code validation and translation. These minor files will be documented briefly here, and in detail after the system has been fully implemented.

The following diagram (Figure 1) places our data base in perspective.

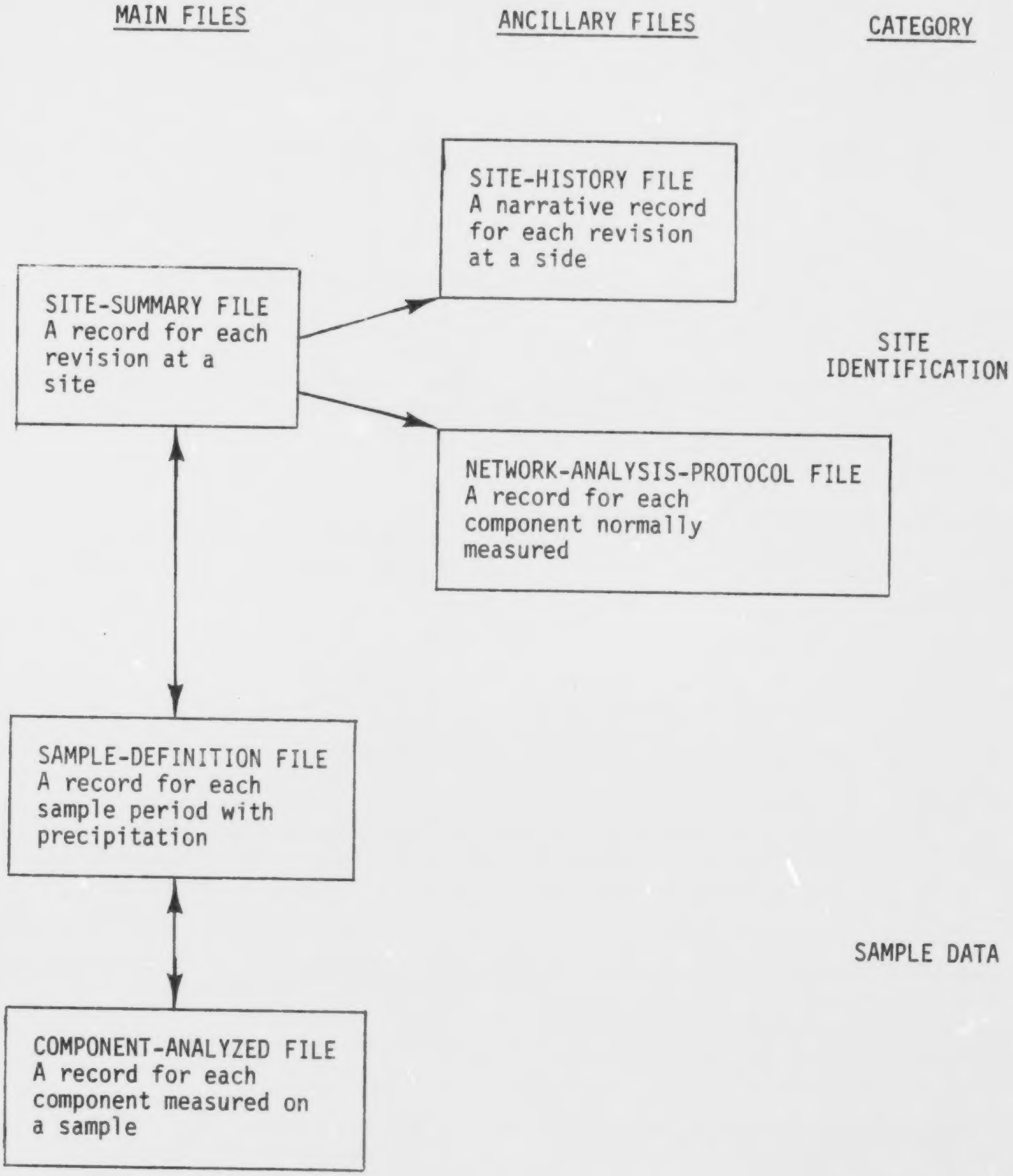
MAIN FILES
ANCILLARY FILES
CATEGORY
SITE-HISTORY FILE
A narrative record for each revision at a side
SITE-SUMMARY FILE
A record for each revision at a site
SITE IDENTIFICATION
NETWORK-ANALYSIS-PROTOCOL FILE
A record for each component normally measured
SAMPLE-DEFINITION FILE
A record for each sample period with precipitation
SAMPLE DATA
COMPONENT-ANALYZED FILE
A record for each component measured on a sample

FIGURE 1. Acid Deposition Data System Schematic Design

RECORD DESCRIPTION PROTOCOL

We have established the data base using DATATRIEVE, a query language for DEC computers. DATATRIEVE allows easy access to the data for ad hoc retrievals, and also supports procedures for routine report production.

We have written the record definitions in DATATRIEVE style. In that style, a record definition is written in outline form. Group items (those without a PICture clause) are included to show logical grouping of the fields. Only two types of PICture have been used in these definitions: X and 9. PICture X indicates one alphanumeric character. PICture X(2), or PIC XX, indicates space for two alphanumerics. PICture 9 indicates one numeric character, while PIC 9(4), or PIC 9999, indicates four numerics. The position of a decimal point is indicated by the letter V, thus PIC 999V9 indicates space for three numerics to the left and one to the right of the decimal point. Provision for a minus sign associated with a number is indicated by the letter S to the left of the first 9 in a PICture, i.e., S9(3).

A special binary format is available for storing dates. This is indicated by usage DATE rather than a PIC. A computer word may be used to store numeric information; this is indicated by usage REAL rather than a PIC.

DATATRIEVE has the ability to display virtual fields - values which are derived from other fields are computed and displayed as if they were actual fields in the data base. We have indicated these fields with the word "computed", in DATATRIEVE they are defined with a COMPUTED BY clause.

This section of the document describes in detail each field in the records of the ADS data base. The descriptions include valid codes and their translations for coded fields. The translations will appear on most screen or paper output, the codes will be written to computer tape output. Appendix A contains a concise summary of the fields. The various codes for site identification are tabulated in Appendix C. Components analyzed, their codes, and standardized measurement units and their optional output conversion factors are shown in Appendix B.

SITE-SUMMARY-RECORD DESCRIPTION

The SITE-SUMMARY file is relatively static. It contains several records per sampling site. New records are created only when there is a change in sampling protocol at that site. Input is the responsibility of the ADS staff. Each data record added to the SAMPLE-DEFINITION and COMPONENT-ANALYZED files will be validated against this file.

Each record in this file applies to a given interval of time. Thus, each measurement value retrieved from the COMPONENT-ANALYZED file will be associated with the protocol (collection instrument, analysis laboratory, etc.) in effect when the sample was collected.

The SITE-SUMMARY-RECORD is divided into four major groups:

```
1 SITE-SUMMARY-RECORD
    2 ADS-KEY
    2 SITE-NAMES
    2 SITE-LOCATION
    2 SITE-PROTOCOL
```

Each group is discussed in detail below.

The first group in the SITE-SUMMARY-RECORD is the ADS-KEY:

```
2 ADS-KEY
    3 ADS-NUM                                 PIC X(3)
    3 ADS-TYPE                                PIC X
    3 ADS-REV-NUM                             PIC X(2)
```

These three fields are the unique site identifier which ties the various files together.

The ADS-NUM identification number will be assigned by the ADS manager - it will be unique to that geographic location. We have defined it as a three character alphanumeric with the intent of defining the first 999 sites numerically. If more than 1000 sites are defined, letters will be used. This ADS-NUM will not change, even if operation of this site becomes the responsibility of another network.

The ADS-TYPE is a letter which indicates sampler at the site. Sites with a single sampler will be coded "a", while sites with coincident samplers will be assigned two records in this file, the primary sampler will be coded "a" while the secondary one will be "b". This scheme allows for many coincident samplers at a given site.

The ADS-REV-NUM is a two digit number which will be incremented each time the protocol at that site is modified. For example, suppose site "152a" was initiated on 1/1/77 with a brand X sampler. The ADS-REV-NUM would be assigned as "00". Suppose that a brand Y sampler replaced the original device on 2/15/78. The new ADS-REV-NUM would be "01". In the SAMPLE-DEFINITION and COMPONENT-ANALYZED files, all data collected between 1/1/77 and 2/15/78 would be associated with ADS-IDENT "152a00" while samples collected after 2/15/78 would be coded "152a01". If the administration of site 152 changed from network "ABC" to network "EFG" on 7/1/80, a new ADS-REV-NUM, "02" would be assigned. Upon retrieval, it would be up to the requester to decide whether to use samples with ADS-IDENT of "152a00", "152a01", and "152a02" in the analysis or restrict the analysis to a subset based on the ADS-REV-NUM. The SITE-HISTORY records will provide a narrative history of the revisions.

The second group of items in the SITE-SUMMARY-RECORD contains various references to site:

```
2 SITE-NAMES
     3 SAROAD-FIELDS
     3 FIPS-CODES
     3 NETWORK-SITE-IDENTIFICATION
     3 SITE-NAME
```

The first of these, the SAROAD-FIELDS contains 12 bytes, and includes one of the alternate index keys to the file:

```
3 SAROAD-FIELDS
     4 SAROAD-KEY                                PIC X(9)
     4 AGENCY                                    PIC X
     4 PROJECT                                   PIC X(2)
```

The SAROAD-KEY may be thought of as three data items:

```
4 SAROAD-KEY                                     PIC X(9)
4 SAROAD-SITE redefines SAROAD-KEY
     5 STATE                                     PIC X(2)
     5 AREA                                      PIC X(4)
     5 SITE                                      PIC X(3)
```

This group of fields is included to provide an alternate retrieval and output option for those investigators who prefer the SAROAD system's site identification scheme.

STATE is a standard SAROAD identifier, it will be automatically validated against the existing verification/translation table of state codes; data with invalid STATE code will not be added to the data base until the ADS administrator has authorized the addition. The name of the state will appear on most retrievals via the validation table. This code uses numbers from 1 to 52 for the United States, Puerto Rico and American Samoa. Two character letter codes are used for foreign countries.

AREA is a standard SAROAD identifier which corresponds to a county or city code within the United States. It will be validated against the table of state-area combinations currently in the data base; addition of new AREA codes will require concurrence of the ADS administrator.

The SAROAD SITE identifier is assigned by EPA to identify the site and is unique.

The remaining two items in SAROAD-FIELDS are not part of the key since the first nine bytes of the SAROAD identification scheme are unique for a site.

```
4 AGENCY                                         PIC X
4 PROJECT                                        PIC X(2)
```

These two fields, AGENCY and PROJECT, are included for compatibility with previously published data.

The next group in the SITE-NAMES also provides an alternate access method to a site:

```
3 FIPS-CODES
     4 FIPS-STATE                                   PIC 99
     4 FIPS-COUNTY                                  PIC 999
```

The Federal Information Processing codes for states and counties within states are included to provide an alternate access route. These codes have been extended by the ADS administrator to include Canada.

The two digit FIPS-STATE code was assigned by FIPS almost alphabetically; there are gaps in the code sequence for eventual new states. The provinces and territories of Canada were arbitrarily appended to the FIPS sequence by the ADS administrator. Table B.1 lists the currently valid codes.

The second item in the FIPS-CODES group is FIPS-COUNTY. These three digit codes are assigned to the alphabetic list of counties within each state. The combination of FIPS-STATE and FIPS-COUNTY is necessary to decode a county name.

The third group of items in the SITE-NAMES group is:

```
3 NETWORK-SITE-IDENTIFICATION
     4 NET-KEY                                      PIC X(12)
     4 NET-SITE-NAME                                PIC X(45)
```

These fields define the site in terms used by the network. The NET-KEY is an alternate index key to the file. This allows rapid retrieval on either the ADS identifications, the SAROAD id's, or the network's site identification scheme.

The NET-KEY may be thought of as two fields:

```
4 NET-KEY                                      PIC X(12)
4 NET-IDENT redefines NET-KEY
     5 NET-CODE                                PIC X(2)
     5 NET-SITE                                PIC X(10)
```

The NET-CODE is used with a table to identify the network. The codes are arbitrarily assigned by the ADS administrator. By mixing alphabetic characters and numbers in these two bytes, we are able to provide for several thousand networks. Current codes and their translations are presented in Table B.2. The other portion of the NET-KEY is the NET-SITE. This 10 character field contains whatever combination of letters and numbers used by the network to identify the site. See Appendix C for a list of the NET-SITE values.

The second item in NETWORK-SITE-IDENTIFICATION is:

```
          4 NET-SITE-NAME                     PIC X(45)
```

This 45 character field contains a full descriptive name of the site.

The final group in the SITE-NAMES is

```
        3 SITE-NAME                           PIC X(18)
```

This 18 character site name is the nickname which appears on most output. See Appendix C for a list of the site names.

The third major group in the SITE-SUMMARY-RECORD is:

```
     2 SITE-LOCATION
          3 LATITUDE
          3 LONGITUDE
          3 ELEVATION-METERS
          3 TIME-ZONE
```

The geographic location of the sampling site is necessary in analysis of deposition patterns.

```
          3 LATITUDE
               4 N-OR-S                       PIC X
               4 LATITUDE-DEG                 PIC 99
               4 LATITUDE-MIN                 PIC 99
               4 LATITUDE-SEC                 PIC 99

          3 LONGITUDE
               4 E-OR-W                       PIC X
               4 LONGITUDE-DEG                PIC 999
               4 LONGITUDE-MIN                PIC 99
               4 LONGITUDE-SEC                PIC 99
```

The site elevation in meters above sea level is another important aspect of site location. Feet above sea level will be available as an output option. (The elevation of the sampler above the ground will be in the SITE-PROTOCOL section of this record.)

```
          3 ELEVATION-METERS                  PIC 9999
```

The remaining field in the SITE-LOCATION group is TIME-ZONE. It is used at input to convert local time to GMT. At output it is used if the local time option is selected.

```
          3 TIME-ZONE                         PIC S99
```

The time zone will include a plus or minus sign to facilitate simple addition of time zone to GMT hour to get local standard time.

The final group in the SITE-SUMMARY-RECORD is:

```
2 SITE-PROTOCOL
    3 REVISION-START-DATE                     usage DATE
    3 REVISION-END-DATE                       usage DATE
    3 MONITOR-PURPOSE                         PIC X
    3 PROTOCOL-SAMPLE-PERIOD                  PIC X
    3 INSTRUMENT-CODE                         PIC X(2)
    3 INSTRUMENT-AREA-SQ-CM                   PIC 9999V99
    3 METERS-ABOVE-GROUND                     PIC 999V9
    3 LAB-CODE                                PIC X(4)
    3 NUM-COMPONENTS                          PIC 99
```

This group of fields is related to the field operation at this site. If the sampling instrument device is replaced or modified for example, an additional SITE-SUMMARY-RECORD will be written and the revision dates will be modified accordingly. A narrative explanation of the change will also be placed in the SITE-HISTORY file.

```
3 REVISION-START-DATE                     usage DATE
3 REVISION-END-DATE                       usage DATE
```

The two dates, REVISION-START-DATE and REVISION-END-DATE are stored in an internal binary format. Various display options are available, usually the ADS user will see "MM/YY". These dates are repeated in the SITE-HISTORY file. If the start date is unknown, the date of the first sample is used. If the revision is currently in effect, the end date will be set to 9/9/99, that is, Sept 9, 1999.

```
3 MONITOR-PURPOSE                         PIC X
```

MONITOR-PURPOSE is a single character code which identifies the reason that samples are collected at this site. Two codes are valid:

R = regional
S = source directed

The code "R" indicates that precipitation is being monitored in order to characterize a geographic region, while the "S" indicates that the site is part of an effort to evaluate deposition patterns near known or suspected sources of acid precipitation.

```
3 PROTOCOL-SAMPLE-PERIOD                  PIC X
```

The PROTOCOL-SAMPLE-PERIOD is a code to indicate the network's intended sample collection plan. The current codes are:

E = event
D = daily
W = weekly
M = monthly
L = lunar month (4 weeks)

3 INSTRUMENT-CODE PIC X(2)

The INSTRUMENT-CODE is a two character code which identifies the sample collection instrument. A minor file will contain a full description of the instrument. Current codes are given in Table B.3. The INSTRUMENT-CODE will also be used to validate additions to the data base; new instrument codes will require confirmation by the ADS administrator.

3 INSTRUMENT-AREA-SQ-CM PIC 9999V99

The INSTRUMENT-AREA-SQ-CM is a number which is specific to a sampling device. The collecting surface area of the sampling instrument is essential for converting sample volume to a depth measurement for comparison with rain gage depth.

3 METERS-ABOVE-GROUND PIC 999V9

METERS-ABOVE-GROUND defines the height of the collecting surface above the ground. It may not be available for past data, if so, a default value of "0" will be assigned. We made this field large enough to accommodate a collector 1000 meters above the ground if a study of vertical distribution of rain borne acid were to be included in ADS.

3 LAB-CODE PIC X(4)

LAB-CODE is a four character code defining the laboratory to which samples from this site are sent for analysis. A table will allow a more descriptive laboratory name to appear on output. The codes currently in use appear in Table B.4.

3 NUM-COMPONENTS PIC 99

NUM-COMPONENTS is the number of components usually measured at this site.

SAMPLE-DEFINITION-RECORD DESCRIPTION

The SAMPLE-DEFINITION file is relatively dynamic; a new record is added for each sample reported by a participating network. The records are organized by date within sampling station. ADS uses SAMPLE-DEFINITION-RECORD to trace the sample collection history at a site. Understanding the conditions that result in a SAMPLE-DEFINITION-RECORD being present in ADS is essential to the correct use of data obtained from ADS. The conditions for a record being present depend in part on whether the network uses a daily PROTOCOL-SAMPLE-PERIOD or a cumulative (e.g., weekly, monthly, 4-week) PROTOCOL-SAMPLE-PERIOD.

For a cumulative PROTOCOL-SAMPLE-PERIOD, a SAMPLE-DEFINITION-RECORD is present for all time periods whether or not precipitation occurred or whether or not component measurements were taken. This is the case even if the sample collection at the site is discontinued for an interim period. Every day of a monitoring year at a site is accounted for by a SAMPLE-DEFINITION-RECORD. The

SAMPLE-DEFINITION-RECORD clearly identifies what was the monitoring status at the site for that period. If the site was operating normally during the period, then the record indicates this and gives the occurrence or not of precipitation. Ideally, all precipitation occurring at a site during a year is recorded on the SAMPLE-DEFINITION-RECORD. Hence, it is important for a cumulative operation network to provide precipitation information even though the actual precipitation chemistry sample information is not available.

For event or daily PROTOCOL-SAMPLE-PERIOD sites, a SAMPLE-DEFINITION-RECORD is present only when precipitation events occurred or for days when precipitation occurred. Under these conditions the SAMPLE-DEFINITION-RECORD for a monitoring year would provide all the information necessary to determine wet deposition characteristics at the site. If monitoring is interrupted at a site for an interim period, and no information on the occurrence of precipitation during the interim period is available, then a SAMPLE-DEFINITION-RECORD for the time period is required by ADS. These records are necessary to alert the user that precipitation events have been potentially missed.

There are six major groups in the SAMPLE-DEFINITION-RECORD:

```
1 SAMPLE-DEFINITION-RECORD
     2 SAMPLE-KEY
     2 DATES
     2 SAMPLE-DESCRIPTION
     2 SAMPLE-QUANTITY
     2 COMPONENT-SUMMARY
     2 OBSERVATIONS
```

The SAMPLE-KEY combines the ADS-IDENT with the REFERENCE-DATE to form a unique 14 character key to this record:

```
2 SAMPLE-KEY
     3 ADS-IDENT
     3 REFERENCE-DATE
```

The ADS-IDENT was discussed in detail for the SITE-SUMMARY-RECORD. It is six bytes which define a site:

```
3 ADS-IDENT
     4 ADS-NUM                             PIC X(3)
     4 ADS-TYPE                            PIC X
     4 ADS-REV-NUM                         PIC 99
```

The next item allows unique identification of a sample within a site:

```
3 REFERENCE-DATE
     4 REF-YR                              PIC 99
     4 REF-MON                             PIC 99
     4 REF-DAY                             PIC 99
     4 REF-HOUR                            PIC 99
```

For networks such as NADP and CANSAP, which collect weekly or monthly composite samples, the sample reference date is the date/time the collection bucket was placed in the sampler. For event oriented networks such as MAP3S/PCN and APIOS, the reference date/time is that of the end of the event.

The next major group in the SAMPLE-DEFINITION-RECORD is:

```
2 DATES
    3 SAMPLE-START
    3 EVENT-START
    3 EVENT-END
    3 SAMPLE-END
    3 AT-LAB-DATE
```

SAMPLE-START is a 10 digit number containing the date and time the sample collection period started. The date is in YYMMDD format, and time is in 24 hour system using GMT. For event driven networks such as MAP3S/PCN, the sample start is identical to EVENT-START. For networks which composite samples, the SAMPLE-START is the date and time a new collection bucket is installed.

EVENT-START is a 10 digit number containing the date and time the event started. The date is stored in YYMMDD order, time is in 24 hour system using GMT. For networks which do not record event date, this field is blank. For networks like EPRI-SURE and APIOS which do record EVENT-START but do not record SAMPLE-START both fields contains the EVENT-START value.

EVENT-END is a 10 digit number containing the date and time at which the event ended. The date is in YYMMDD order, time is in 24 hour GMT. For networks which do not report an EVENT-END value, this field is set blank.

SAMPLE-END is a 10 digit number containing the date and time at which the sample was removed from the sampler. The date is in YYMMDD order, time is in 24 hour GMT to the nearest minute.

AT-LAB-DATE is a six digit number containing the date, in YYMMDD order, the sample arrived at the analysis laboratory. If no arrival date is given, then AT-LAB-DATE is blank.

The third major group in the SAMPLE-DEFINITION-RECORD is:

```
2 SAMPLE-DESCRIPTION
    3 QC-FLAG
    3 ACTUAL-SAMPLE-PERIOD
    3 PRECIP-OCCUR
    3 PRECIP-TYPE
    3 DEPOSITION-TYPE
    3 MET-PROTOCOL
    3 DAYS-IN-SAMPLE
    3 HOURS-OF-RAIN
    3 LID-OPENINGS
```

This group of fields describe the sample characteristics in general. What type of sample, purpose of sample, type of precipitation, how long was sample collected, and did sample meet the contributing network protocol. The items in this group are:

3 QC-FLAG PIC X

If this flag is not blank, it indicates that this sample represents some sort of quality control process. Only samples with a blank QC-FLAG will be used for deposition analysis. Current codes used for QC-FLAG are:

blank = non quality control sample

S = system blank, dry wet-side bucket rinsed and analyzed

Q = NADP Lab QA flag - known concentration solution placed in bucket by field operator in weeks of zero precipitation.

3 ACTUAL-SAMPLE-PERIOD PIC X

The ACTUAL-SAMPLE-PERIOD field shows the actual sampling interval. The current codes are:

E = event
D = daily 24 hrs
W = weekly
M = monthly
L = lunar month (4 weeks)
N = non-standard time period

The ACTUAL-SAMPLE-PERIOD is set to the PROTOCOL-SAMPLE-PERIOD as defined in the site record unless it is set to "N" by the ADS input data conversion procedure. The following decision table is used

Protocol Sample Period	Days in Sample	Days in Sample	Days in Sample
E	NA	1 = E	>1 = N
D	NA	1 = D	>1 = N
W	<6 = N	6,7,8 = W	>8 = N
M	<28 = N	28,29,30,31,31 = M	>32 = N
L	<27 = N	27,28,29 = L	>29 = N

3 PRECIP-OCCUR PIC X

The PRECIP-OCCUR field records explicitly the status of knowledge (to ADS) whether precipitation occurred or not during the time period covered by the SAMPLE-DEFINITION RECORD. The information in PRECIP-OCCUR is used extensively in the preparation of standard ADS data summary reports. The available codes are:

M = precipitation occurred and a measure of the quantity of precipitation is available

P = precipitation is known to have occurred but no measure of the quantity of precipitation is available

Z = no precipitation occurred during this period

X = no information is available to ADS on whether or not precipitation occurred

Y = monitoring site is not in operation during this time span, i.e., no attempt to monitor

By consulting this field it is easy to determine the level of monitoring effort at the site for a given time period.

3 PRECIP-TYPE PIC X

PRECIP-TYPE is a code for the type of precipitation collected. While various networks report this in detail (some report daily observations for weekly samples, some distinguish between hail and freezing rain, etc.), network reported precipitation types are recoded to five categories within ADS.

R = rain
S = snow or other frozen precip
M = mixed rain and snow
U = unknown
N = not available, but known

This classification is based on the premise that sampling efficiency is primarily effected by temperature - samplers are less efficient in freezing temperatures - and that it is difficult to ascribe one type of precipitation to samples representing days or weeks of collection.

3 DEPOSITION-TYPE PIC X

DEPOSITION-TYPE is a code which indicates the type of sample, and is dependent on the type of instrument in operation at that site. Current codes are:

B = Bulk sample, collection bucket exposed continually during sample period

W = Wet deposition, collection bucket exposed only during precipitation periods

U = Undefined, collection bucket exposed neither as wet only (W) nor bulk (B)

S = System blank, dry-wet side collection bucket subjected to analysis

N = No precipitation and no system blank

X = No information on type available

3 MET-PROTOCOL	PIC X

MET-PROTOCOL is a code which indicates whether or not the sample met the network's protocol. Three codes will be applied to the data received from the network:

N = sample did not meet protocol

Y = sample did meet protocol

blank = network did not report; assume that sample did meet the protocol.

3 DAYS-IN-SAMPLE	PIC 99

DAYS-IN-SAMPLE is a two digit number containing the number of days in the sample. For networks using a fixed interval collection protocol, the days in the sample is the difference between the date portion of SAMPLE-END and SAMPLE-START. For event oriented networks, the days in the sample is the difference between EVENT-END and EVENT-START. If the result is zero, because the two dates are the same, the DAYS-IN-SAMPLE field is set to 1. Thus, if DAYS-IN-SAMPLE is 1, the actual elapsed time could be anywhere from a few minutes to 48 hours.

3 HOURS-OF-RAIN	PIC 9(4)

HOURS-OF-RAIN is a four digit number reported by a few networks.

3 LID-OPENINGS	PIC 99

This value is available for some of the collection instruments. We expect that most networks will not be able to supply this number. This number is used in a quality control sense, if it is zero yet there is some precipitation in the sampler an instrument error is indicated. If the number of lid openings is very large, an instrument error is indicated. There is no reasonable way of relating a normal number of lid openings to the deposition patterns. The values in the field have the following meaning:

0 = Reported no lid openings
1-90 = Actual number of lid openings reported
98 = Reported occurrence of at least one lid opening
99 = No information reported

The fourth major group in the SAMPLE-DEFINITION-RECORD is:

```
2 SAMPLE-QUANTITY
     3 RAIN-GAGE-MM
     3 SAMPLE-VOLUME-ML
     3 SAMPLE-VOLUME-ERROR-CODE
     3 SAMPLE-VOLUME-ERROR
     3 PREDICTED-VOLUME-ML
     3 PREDICTED-DEPTH-MM
     3 SAMPLING-EFFICIENCY
```

3 RAIN-GAGE-MM usage REAL

RAIN-GAGE-MM contains the observed rain depth in the actual sampling period, i.e., from start to stop as defined by the network. For NADP, this is the sum of daily amounts. If the site reports rain gage measurements in inches, they will be converted to millimeters before being stored here. If rain gage is not reported, a missing value code of "999999" will be entered in this field.

3 SAMPLE-VOLUME-ML usage REAL

SAMPLE-VOLUME-ML is the observed volume of precipitation in the sampling instrument. If necessary, the sample volume is converted to milliliters on conversion of a network's data tape to ADS. Missing volume information is indicated by "999999".

3 SAMPLE-VOLUME-ERROR-CODE PIC X

The SAMPLE-VOLUME-ERROR-CODE is a flag indicating what type, if any, of measurement error is associated with the sample volume. These codes are:

* = SAMPLE-VOLUME-ERROR is a multiplicative estimate of error. It is a dimensionless constant. The upper bound is the SAMPLE-VOLUME-ML times the SAMPLE-VOLUME-ERROR. The lower bound is the SAMPLE-VOLUME-ML divided by the SAMPLE-VOLUME-ERROR.

% = SAMPLE-VOLUME-ERROR is percent plus or minus. The upper bound is the SAMPLE-VOLUME-ML plus the SAMPLE-VOLUME-ML times the SAMPLE-VOLUME-ERROR. The lower bound is the SAMPLE-VOLUME-ML minus the SAMPLE-VOLUME-ML times the SAMPLE-VOLUME-ERROR-value.

+ = SAMPLE-VOLUME-ERROR is an absolute number. The upper bound is the SAMPLE-VOLUME-ML plus the SAMPLE-VOLUME-ERROR. The lower bound is the SAMPLE-VOLUME-ML minus the SAMPLE-VOLUME-ERROR.

blank = the network did not supply any SAMPLE-VOLUME-ERROR.

3 SAMPLE-VOLUME-ERROR usage REAL

The SAMPLE-VOLUME-ERROR is used in conjunction with the SAMPLE-VOLUME-ERROR-CODE as described above to compute upper and lower estimates of the sample-volume measurement. This field may contain a decimal point. Missing values, indicated by a blank in SAMPLE-VOLUME-ERROR-CODE, contain "999999".

3 PREDICTED-VOLUME-ML usage REAL

The PREDICTED-VOLUME-ML is RAIN-GAGE-MM times INSTRUMENT-AREA-SQ-CM divided by 10 to convert to ML. It may be compared with SAMPLE-VOLUME as a measure of sampling efficiency. Missing values, indicated by 999999, occur when RAIN-GAGE-MM is missing.

3 PREDICTED-DEPTH-MM usage REAL

PREDICTED-DEPTH-MM is SAMPLE-VOLUME-ML divided by INSTRUMENT-AREA-SQ-CM and multiplied by 10 to convert to MM. The missing value code, 999999, is stored when SAMPLE-VOLUME-ML is missing.

3 SAMPLING-EFFICIENCY usage REAL

SAMPLING-EFFICIENCY is a measure of the efficiency of the sampling instrument. It is the ratio of the SAMPLE-VOLUME-ML to the PREDICTED-VOLUME-ML. If either the RAIN-GAGE-MM or the SAMPLE-VOLUME-ML is missing, SAMPLING-EFFICIENCY is set to the missing value code, 999999.

The fifth major group in the SAMPLE-DEFINITION-RECORD is

```
2 COMPONENT-SUMMARY
     3 NUM-MEASURED
     3 NUM-MISSING
     3 REASON-NO-COMPONENTS
```

3 NUM-MEASURED PIC 99

NUM-MEASURED is a count of the number of components for which measurements exist.

3 NUM-MISSING PIC 99

NUM-MISSING is a count of the number of components which are normally measured by this network which were not measured for this sample.

3 REASON-NO-COMPONENTS PIC X

REASON-NO-COMPONENTS explains total absence of the component measurements, it has the following values:

Blank = at least one component reported

I = insufficient precipitation to complete any measurement

F = field site problem - sample malfunction, sample lost at site

T = transport loss between site and lab

L = laboratory did not complete analysis - sample loss, no analysis possible, etc.

S = network coordinator screened (deleted) all component results as being unreliable

N = no precipitation and no analysis of dry-wet-side bucket

X = no information is available to ADS on whether or not precipitation occurred

Y = monitoring site is not in operation during this time span

The codes assigned can be considered to fall into three groups: data present (blank), no sample collected (N, X, Y) and sample collection/analysis attempted (I, F, T, L, S). In assigning codes the the latter group, if multiple code assignments are possible, the code dominance is S, L, T, F and I with S being reported over L, etc.

The final major group in the SAMPLE-DEFINITION-RECORD is:

```
2 OBSERVATIONS
    3 FIELD-INITIALS
    3 NOTE CODES
        4 MAX-NOTE
        4 NOTES
```

These fields key the narrative qualifications for the sample. All notes are preserved. A subjective categorization of the notes is provided to assist in routine use of note information.

3 FIELD-INITIALS PIC X(3)

This is the initials of the person collecting the sample. We expect that it will be impossible to supply this data for old observations, but it ought to be added to future observations. The default value will be "unk" for "unknown".

The next item in observations contains two fields:

```
                3 NOTE-CODES
                    4 MAX-NOTE                              PIC X
                    4 NOTES                                 PIC X(60)
```

The MAX-NOTE is a code indicating the most severe note to be found in the notes field. NOTES contains as many as 20 three character codes describing the sample. These notes are defined in a hierarchy described below.

The notes reported by sampling networks serve two purposes within each network. Some notes help network managers understand day-to-day operation of the network; the performance of station operators and sampling instruments are reflected in notes such as "sample lost", "rain gage inoperative", or "insufficient sample for complete measurement". These notes explain why a sample or a component of a sample is missing from the data base. The other type of note is often more subtle; comments such as "insect in sample", "sample contaminated", or "alternate operator" imply something about the quality of the values in the data base.

We have developed a classificatory scheme for the notes supplied by the networks. Each of the network supplied note codes was assigned a three character code in which the first character is a letter - A, B, C, or D, and the last two characters are arbitrary numbers from 00 to 99. Using this scale, the letter of the most severe note for the sample is placed in the MAX-NOTE field. This is an advisory field only, investigators using ADS are urged to examine the entire NOTES field. The user should also consult the component record RESULT-NOTE for information specific to a component.

Table B.5 shows provisional (subject to review by network managers) assignment of NOTES. The letters have the following meaning:

A = notes explain why complete sample data or component measurements were not reported. That is, a sample was collected (it <u>did</u> rain) but some or all of the component results are not available.

B = notes relate to the quality of the sample, field conditions, etc.

C = notes relate to the quantity of the sample.

D = notes explain why one or more component results (or all results for a sample) may be suspect.

These code letters have the following hierarchical relationship

A < B < C < D

less severe — more severe

Example:

Suppose an EPRI-SURE record sample has four note codes:

13	lid opened manually
17	pH or conductivity or temperature meter inoperative
19	filtered samples
28	alternate operator

These would be translated to the ADS note codes as follows:

13 = B12
17 = A05
19 = B15
28 = B20

The MAX-NOTE would be "B". The NOTES would be: B12A05B15B20.

COMPONENT-ANALYZED-RECORD DESCRIPTION

The COMPONENT-ANALYZED file contains one record for each measurement performed on the sample. Component is a generic term used to identify all measurements taken for a precipitation chemistry sample, except sample volume. This includes field pH, field conductivity, lab pH, lab conductivity, total acidity as well as ion species concentrations. If the sample was taken but no components were reported, there will be no records in the COMPONENT-ANALYZED file. If the operating protocol called for nine component measurements on this sample yet only two were reported by the network, only two records will be found in this file. The SAMPLE-DEFINITION-RECORD contains note codes explaining why less than the expected number of measurements is available.

The COMPONENT-ANALYZED-RECORD consists of two major group items:

```
1 COMPONENT-ANALYZED-RECORD
     2 COMPONENT-IDENT
     2 RESULTS
```

The COMPONENT-IDENT group consists of two items:

```
2 COMPONENT-IDENT
     3 COMPONENT-KEY
     3 COMPONENT-CODE
```

The first, COMPONENT-KEY is a group item, the next, COMPCNENT-CODE is a virtual field - it is computed from a table.

COMPONENT-KEY consists of two items:

```
3 COMPONENT-KEY
     4 COMPONENT-NUM                              PIC X(2)
     4 ADS-KEY                                    PIC X(14)
```

There are two keys to this file, the full 16 byte COMPONENT-KEY, and the 14 byte ADS-KEY which is the a subset of the COMPONENT-KEY. This allows rapid retrieval on either the component within a given site, or for all sites, and by site. Most browsing through this file will be by COMPONENT-NUM, that is, a person will be presented with all measurements for a component, i.e., sulfate, in ascending sequence by ADS site and start date/time within site. On the other hand, retrievals based on sample information will be via the ADS-KEY. Components will be presented in component order within a site. That is, for site 021a00 on 79100200 components will appear in order of COMPONENT-NUM, i.e., 10 (conductivity), 20 (pH), 25 (weak acid), 31 (SO4), etc.

The 16 character COMPONENT-KEY starts with the following two byte data item:

```
4 COMPONENT-NUM                        PIC X(2)
```

This two character number identifies the chemical species for which this analysis was made. There are currently 41 component numbers in use. They are shown in Table B.6 along with the four character component codes. Three optional sets of measurement units which are available upon retrieval are shown in Table B.7.

The remainder of the COMPONENT-KEY is the 14 characters which define the ADS station number and the sample start day/time:

```
4 ADS-KEY
     5 ADS-IDENT
          6 ADS-NUM                    PIC X(3)
          6 ADS-TYPE                   PIC X
          6 ADS-REV-NUM                PIC XX
     5 REFERENCE-DATE
          6 REF-YR                     PIC 99
          6 REF-MON                    PIC 99
          6 REF-DAY                    PIC 99
          6 REF-HOUR                   PIC 99
```

These 14 characters should be self-explanatory - they were discussed in detail previously.

The next item in COMPONENT-IDENT is not actually stored in the record; it is an automatic table lookup:

```
3 COMPONENT-CODE                            computed by
                                            COMPONENT-NUM via
                                            COMPONENT-TABLE
```

This four character code identifies the chemical species for which this analysis was made in a mnemonic form. The codes are shown in Table B.6.

The second major group in the COMPONENT-ANALYZED-RECORD is the RESULTS group.

```
2 RESULTS
     3 TYPE-RESULTS-FLAG
     3 DATE-ANALYZED
     3 ANAL-INITIAL
     3 RESULT-NOTE
     3 RESULT-FLAG
     3 RESULT-VALUE
     3 UNITS
     3 ERROR-FLAG
     3 ERROR-VALUE
```

```
     3 TYPE-RESULTS-FLAG                          PIC X
```

This flag can have the following values:

blank = normal analysis
Q = Quality Control results.

The DATE-ANALYZED is three data items:

```
     3 DATE-ANALYZED
          4 ANAL-YR                               PIC 99
          4 ANAL-MO                               PIC 99
          4 ANAL-DA                               PIC 99
```

This is the date the sample analysis was completed for this component. If this date is unavailable, it will be set to "999999".

The next item in RESULTS is a single data item:

```
     3 ANAL-INITIAL                               PIC X(3)
```

These are the initials of the person responsible for the quality of the reported results or the person who performed the analysis. If it was not supplied by the network it was set to "unk".

```
     3 RESULT-NOTE                                PIC X
```

The code, RESULT-NOTE, is a one character field which contains information about the result for this component. The valid codes are:

blank = no note for this component

S = result marked as "suspect" or unreliable as determined by the network

I = informative comment concerning this component is given in the sample record

The next item in RESULTS is:

```
3 RESULT-FLAG                              PIC X.
```

This code identifies samples at or below detection limits, values are:

blank = normal

< = at or below detection limit
in which case, the detection limit will
appear in RESULT-VALUE

* = reported value is questionable, it is between
detection limit and quantification limit

> = actual value is greater than reported value

? = unreliable result

A = approximate value

L = actual value less than reported

M = no response, minimum detectable value reported

P = reported value is below 10% precision limit
(where SD/CONC $\geq$ 0.10)

These codes are, of course, assigned by the network.

The next item in RESULTS is the result itself:

```
3 RESULTS-VALUE                            PIC 9(6)
```

The six characters reserved for this number include the decimal point. Thus, it is possible for a value to be as large as 99999. and as small as .00001. Negative values may also be stored in this field, if the network wishes.

Note that this field allows five significant digits. In practice, none of the participating networks report more than four significant digits. ADS will not increase the number of significant digits reported; data will be passed on as given. If input procedures are required to convert data to standard ADS measurement units (see Appendix B), the appropriate network manager will concur in the number of digits propagated to the converted data.

```
3 UNITS                                Computed
```

The UNITS associated with the RESULTS-VALUE will be printed from a table. The standard ADS UNITS are shown in Appendix B.

The last items in RESULTS relate to measurement errors:

```
3 ERROR-FLAG                           PIC X
```

The ERROR-FLAG is a code to indicate the type of ERROR-VALUE reported:

* = ERROR-VALUE is a multiplicative estimate of error. It is a dimensionless constant. The upper bound is the RESULT-VALUE times the ERROR-VALUE. The lower bound is the RESULT-VALUE divided by the ERROR-VALUE.

% = ERROR-VALUE is percent plus or minus. The upper bound is the RESULT-VALUE plus the RESULT-VALUE times the ERROR-VALUE. The lower bound is the RESULT-VALUE minus the RESULT-VALUE times the ERROR-VALUE.

+ = ERROR-VALUE is an absolute number. The upper bound is the RESULT-VALUE plus the ERROR-VALUE. The lower bound is the RESULT-VALUE minus the ERROR-VALUE.

blank = the network did not supply any ERROR-VALUE.

The final item in this record is:

```
3 ERROR-VALUE                           PIC 9(5).
```

This is the numeric value which is an estimate of the precision and accuracy of the RESULTS-VALUE. The interpretation of the ERROR-VALUE requires that the user consult with the specific procedures a network uses to derive the value. ERROR-VALUE reported may refer only to laboratory analysis precision and may not include error components related to sample procedures or local atmospheric variability.

SITE-HISTORY-RECORD DESCRIPTION

This record will provide a historical account of up to 100 changes in sampling procedures at a particular geographic site. It has three major groups of fields:

```
1 SITE-HISTORY-RECORD
     2 ADS-IDENT
     2 REVISION-DATES
     2 EXPLANATION-OF-REVISION
```

The first group is ADS-IDENT.

```
2 ADS-IDENT
     3 ADS-NUM                          PIC X(3)
     3 ADS-TYPE                         PIC X
     3 ADS-REV-NUM                      PIC XX
```

These six characters are the identification code for the site as explained in the discussion of the SITE-SUMMARY-RECORD.

```
          2 REVISION-DATES
```

These two dates define the effective time frame for this revision to the sampling procedures. See the SITE-SUMMARY-RECORD for more details.

```
               3 REVISION-START-DATE                     usage DATE
               3 REVISION-END-DATE                       usage DATE

          2 EXPLANATION-OF-REVISION                      PIC X(400)
```

This text field will allow up to 400 characters of narrative information to describe the change in procedures which caused generation of this record. Output will be automatically presented in multiple line format.

NETWORK-ANALYSIS-PROTOCOL-RECORD DESCRIPTION

The NETWORK-ANALYSIS-PROTOCOL file is static; new records are only added when there is a change in the network chemical analysis protocol.

```
     1 NETWORK-ANALYSIS-PROTOCOL-RECORD
          2 PROTOCOL-IDENT
               3 NET-CODE                                PIC X(2)
               3 COMPONENT-NUM                           PIC X(2)
               3 REVISION-START                          PIC 9(6)
               3 REVISION-END                            PIC 9(6)
```

These first sixteen bytes are the key to the file. They identify the component, the network, and the dates to which this protocol applies.

```
          2 METHOD-CODE-GENERIC                          PIC XX
```

This two character code defines, in general terms, the analysis method used for this component. The valid codes are given in Table B.8.

```
          2 INSTRUMENT-CODE                              PIC XX
```

The INSTRUMENT-CODE is a two character code defining the analysis instrument. The first character is loosely related to the name of the manufacturer. These codes are given in Table B.9.

```
          2 LIMIT-OF-DETECTION                           PIC X(12)
```

The LIMIT-OF-DETECTION is a value reported by the network. The units of measurement (which might not be the units in the COMPONENT-ANALYZED file) are included in this field.

```
          2 METHOD-SPECIFIC                              PIC X(200)
```

The METHOD-SPECIFIC is a narrative description of the analysis method.

5.0 ADS RETRIEVAL

The goal of ADS operation is to provide timely retrieval of information. The data files are structured to optimize retrieval of specific components by geographic location and/or time. There is considerable flexibility in the retrieval process as illustrated by three examples.

Request 1: "Please send me information about acid rain in Oregon.

Response 1: A phone conversation to clarify the request revealed that the requester was interested in trends in the concentration of several components at the NADP sites in Oregon. It was agreed that the best starting place was the NADP quarterly reports. These are on file in the ADS office, and the appropriate pages were copied and mailed. The computer data files were not needed in this case.

Request 2: "What were the monthly depositions of SO4 and NO3 east of the Mississippi as measured by NADP and CANSAP in 1980?"

Response 2: We had several questions for this requester:

"which sites, all or only those which meet the ADS site selection criteria?"

"which samples, all or only those with at least 50% collection efficiency?"

"what units of concentration and deposition are required?"

"what volume, that of the sample or that in the rain gage, should be used in computing deposition?"

These were resolved in one telephone conversation and standard report 6, illustrated in Appendix E, was prepared.

Request 3: I am requesting rainwater data for an EPA research grant, "Chemical Frequency Distributions in Rainwater--A Physical Chemical Model." The first phase of this project is to determine empirical frequency distributions for the major ion species, and to look for the effect of sampling strategy (daily, weekly, monthly) and variations in physical parameters (precipitation intensity, wind speed, wind direction, mixing height, etc.) on these empirical distributions."

Response 3: "We have a standard tape output format (see Appendix F), suppose we prepare a one network subset of the data and send you a tape. This will let you work out the technical details of handling our data. Then, when our current updating process is complete we will send other networks."

REQUESTING INFORMATION

The best way to request information from ADS is to send a brief but precise description of the request to

Dr. Charles R. Watson
Statistics Section, Sigma 3 Building
Pacific Northwest Laboratory
P.O. Box 999
Richland, Washington 99352

Phone: (509) 376-2227 or FTS 444-2227

All written requests must include a telephone number where the requester may be contacted during working hours.

Requests are clarified as illustrated on the previous page by telephone discussions between the requester and the ADS staff when required.

PRINTED REPORTS

Many requests for information are fulfilled through the use of computer generated summary reports. Often these reports have been prepared in response to an earlier request. At other times the proper subset of the data must be retrieved for processing by the summary report procedure. Two of these reports, the SITE INVENTORY by ADS, and the SITE INVENTORY by state/province, are included in this report as Table C.1 and Table C.2 in Appendix C. Other reports are illustrated in Appendix E.

The standard reports fall into three categories:

- NARRATIVE
  - Summary of networks in ADS
  - Summary of operating history at a given site
  - Summary of analytical techniques at a given site
- INVENTORY
  - of sites by ADS identification
  - of sites by state/province
  - of samples by site by year
  - of components at a given site by year
  - of a given component by site by year
- DATA SUMMARIZATION
  - Concentration and deposition of a given component in a given time period (usually 1 year) by site
  - Monthly concentration of a selected component at a given site
  - Monthly concentration and deposition and three month moving average deposition of a given component at a site.

The formats for these reports and the addition of new statistical summary reports are under continual development. A request for a summary report should be formulated to meet the requester's requirement. If a standard report is available, it will be used. If no current standard report is available to satisfy the request, then the ADS staff will contact the requester to discuss the request. In most cases an existing report is found to be adequate. In a few cases the request can initiate the development of a new standard data report.

DATA TAPE EXTRACTION

One of the main features of ADS is the common format for data from multiple networks. Selected portions of the data base can be made available on computer tape. The tape format is described in Appendix F. Potential data users should read the appendix and discuss it with their computer experts prior to requesting data.

Data tapes can be prepared at 800, 1600, or 6250 bpi in either ASCII or EBCDIC code. Unless requested otherwise, the standard is 1600 bpi unlabeled EBCDIC.

The data request should be meaningful. "Send me the entire data base", is not a meaningful request. "Send me a tape of the SO4, NO3, and NH4 data from any sample for which the collection efficiency was between 0.5 and 2.0 and the MAX-NOTE was blank, A, or B", is a meaningful request. In other words, the request should demonstrate an understanding of the data.

APPENDIX A

SUMMARY OF ADS RECORD DEFINITIONS

TABLE A.1 SITE-SUMMARY File Record Description

```
1 SITE-SUMMARY-RECORD.
    2 ADS-KEY.
        3 ADS-NUM                                                 PIC X(3).
        3 ADS-TYPE                                                PIC X.
        3 ADS-REV-NUM                                             PIC XX.
    2 SITE-NAMES.
        3 SAROAD-FIELDS.
            4 SAROAD-KEY                                          PIC X(9).
            4 SAROAD-SITE redefines SAROAD-KEY.
                5 STATE                           PIC X(2).
                5 AREA                            PIC X(4).
                5 SITE                            PIC X(3).
            4 AGENCY                                              PIC X.
            4 PROJECT                                             PIC X(2).
        3 FIPS-CODES.
            4 FIPS-STATE                                          PIC 99.
            4 FIPS-COUNTY                                         PIC 999.
        3 NETWORK-SITE-IDENTIFICATION.
            4 NET-KEY                                             PIC X(12).
            4 NET-IDENT redefines NET-KEY.
                5 NET-CODE                        PIC X(2).
                5 NET-SITE                        PIC X(10).
            4 NET-SITE-NAME                                       PIC X(45).
        3 SITE-NAME                                               PIC X(18).
    2 SITE-LOCATION.
        3 LATITUDE.
            4 N-OR-S                                              PIC X.
            4 LATITUDE-DEG                                        PIC 99.
            4 LATITUDE-MIN                                        PIC 99.
            4 LATITUDE-SEC                                        PIC 99.
        3 LONGITUDE.
            4 E-OR-W                                              PIC X.
            4 LONGITUDE-DEG                                       PIC 999.
            4 LONGITUDE-MIN                                       PIC 99.
            4 LONGITUDE-SEC                                       PIC 99.
        3 ELEVATION-METERS                                        PIC 9999.
        3 TIME-ZONE                                               PIC S99.
    2 SITE-PROTOCOL.
        3 REVISION-START-DATE                                     usage DATE.
        3 REVISION-END-DATE                                       usage DATE.
        3 MONITOR-PURPOSE                                         PIC X.
        3 PROTOCOL-SAMPLE-PERIOD                                  PIC X.
        3 INSTRUMENT-CODE                                         PIC X(2).
        3 INSTRUMENT-AREA-SQ-CM                                   PIC 9999V99.
        3 METERS-ABOVE-GROUND                                     PIC 999V9.
        3 LAB-CODE                                                PIC X(4).
        3 NUM-COMPONENTS                                          PIC 99.

        record length = 155 bytes
```

TABLE A.2 SAMPLE-DEFINITION File Record Description

```
1 SAMPLE-DEFINITION-RECORD.
    2 SAMPLE-KEY.
        3 ADS-IDENT.
            4 ADS-NUM                                  PIC X(3).
            4 ADS-TYPE                                 PIC X.
            4 ADS-REV-NUM                              PIC 99.
        3 REFERENCE-DATE
            4 REF-YR                                   PIC 99.
            4 REF-MON                                  PIC 99.
            4 REF-DAY                                  PIC 99.
            4 REF-HOUR                                 PIC 99.
    2 DATES.
        3 SAMPLE-START.
            4 START-YR                                 PIC 99.
            4 START-MON                                PIC 99.
            4 START-DAY                                PIC 99.
            4 START-HOUR                               PIC 99.
            4 START-MIN                                PIC 99.
        3 EVENT-START.
            4 E-START-YR                               PIC 99.
            4 E-START-MON                              PIC 99.
            4 E-START-DAY                              PIC 99.
            4 E-START-HOUR                             PIC 99.
            4 E-START-MIN                              PIC 99.
        3 EVENT-END.
            4 E-END-YR                                 PIC 99.
            4 E-END-MON                                PIC 99.
            4 E-END-DAY                                PIC 99.
            4 E-END-HOUR                               PIC 99.
            4 E-END-MIN                                PIC 99.
        3 SAMPLE-END.
            4 END-YR                                   PIC 99.
            4 END-MON                                  PIC 99.
            4 END-DAY                                  PIC 99.
            4 END-HOUR                                 PIC 99.
            4 END-MIN                                  PIC 99.
        3 AT-LAB-DATE.
            4 LAB-YR                                   PIC 99.
            4 LAB-MON                                  PIC 99.
            4 LAB-DAY                                  PIC 99.
```

TABLE A.2 SAMPLE-DEFINITION File Record Description (Cont.)

```
2 SAMPLE-DESCRIPTION.
     3 QC-FLAG                                            PIC X.
     3 ACTUAL-SAMPLE-PERIOD                               PIC X.
     3 PRECIP-OCCUR                                       PIC X.
     3 PRECIP-TYPE                                        PIC X.
     3 DEPOSITION-TYPE                                    PIC X.
     3 MET-PROTOCOL                                       PIC X.
     3 DAYS-IN-SAMPLE                                     PIC 99.
     3 HOURS-OF-RAIN                                      PIC 9(4).
     3 LID-OPENINGS                                       PIC 99.
2 SAMPLE-QUANTITY.
     3 RAIN-GAGE-MM                                       usage REAL.
     3 SAMPLE-VOLUME-ML                                   usage REAL.
     3 SAMPLE-VOLUME-ERROR-CODE                           PIC X.
     3 SAMPLE-VOLUME-ERROR                                usage REAL.
     3 PREDICTED-VOLUME-ML                                usage REAL.
     3 PREDICTED-DEPTH-MM                                 usage REAL.
     3 SAMPLING-EFFICIENCY                                usage REAL.
2 COMPONENT-SUMMARY.
     3 NUM-MEASURED                                       PIC 99.
     3 NUM-MISSING                                        PIC 99.
     3 REASON-NO-COMPONENTS                               PIC X.
2 OBSERVATIONS.
     3 FIELD-INITIALS                                     PIC X(3).
     3 NOTE-CODES.
          4 MAX-NOTE                                      PIC X.
          4 NOTES                                         PIC X(60).

     record length  = 168 bytes
```

TABLE A.3 COMPONENT-ANALYZED File Record Description

```
1 COMPONENT-ANALYZED-RECORD.
    2 COMPONENT-IDENT.
        3 COMPONENT-KEY.
            4 COMPONENT-NUM                                  PIC X(2).
            4 ADS-KEY.
                5 ADS-IDENT.
                    6 ADS-NUM                                PIC X(3).
                    6 ADS-TYPE                               PIC X.
                    6 ADS-REV-NUM                            PIC XX.
                5 REFERENCE-DATE.
                    6 REF-YR                                 PIC 99.
                    6 REF-MO                                 PIC 99.
                    6 REF-DA                                 PIC 99.
                    6 REF-HR                                 PIC 99.
        3 COMPONENT-CODE.                                    computed.
    2 RESULTS.
        3 TYPE-RESULTS-FLAG                                  PIC X.
        3 DATE-ANALYZED.
            4 ANAL-YR                                        PIC 99.
            4 ANAL-MO                                        PIC 99.
            4 ANAL-DA                                        PIC 99.
        3 ANAL-INITIALS                                      PIC X(3).
        3 RESULT-NOTE                                        PIC X.
        3 RESULT-FLAG                                        PIC X.
        3 RESULT-VALUE                                       PIC 9(6).
        3 UNITS                                              computed.
        3 ERROR-FLAG                                         PIC X.
        3 ERROR-VALUE                                        PIC 9(5).

        record length  = 40 bytes
```

TABLE A.4 SITE-HISTORY File Record Description

```
1 SITE-HISTORY-RECORD.
    2 ADS-IDENT.
        3 ADS-NUM                                          PIC X(3).
        3 ADS-TYPE                                         PIC X.
        3 ADS-REV-NUM                                      PIC XX.
    2 REVISION-DATES.
        3 REVISION-START-DATE                              usage DATE.
        3 REVISION-END-DATE                                usage DATE.
    2 EXPLANATION-OF-REVISION                              PIC X(400).

        record length = 422 bytes
```

TABLE A.5 NETWORK-ANALYSIS-PROTOCOL File Record Description

```
1 NETWORK-ANALYSIS-PROTOCOL-RECORD.
     2 PROTOCOL-IDENT.
          3 NET-CODE                                             PIC X(2).
          3 COMPONENT-NUM                                        PIC X(2).
          3 REVISION-START                                       PIC 9(6).
          3 REVISION-END                                         PIC 9(6).
     2 METHOD-CODE-GENERIC                                       PIC XX.
     2 INSTRUMENT-CODE                                           PIC XX.
     2 LIMIT-OF-DETECTION                                        PIC X(12).
     2 METHOD-SPECIFIC                                           PIC X(200).

          record length = 232 bytes
```

APPENDIX B

TABLES OF ADS VALID CODES FOR SELECTED DATA FIELDS

TABLE B.1 FIPS Codes for the States and Territories of the U.S.

01 = Alabama
02 = Alaska
04 = Arizona
05 = Arkansas
06 = California
08 = Colorado
09 = Connecticut
10 = Delaware
11 = District of Columbia
12 = Florida
13 = Georgia
15 = Hawaii
16 = Idaho
17 = Illinois
18 = Indiana
19 = Iowa
20 = Kansas
21 = Kentucky
22 = Louisiana
23 = Maine
24 = Maryland
25 = Massachusetts
26 = Michigan
27 = Minnesota
28 = Mississippi
29 = Missouri
30 = Montana
31 = Nebraska
32 = Nevada
33 = New Hampshire
34 = New Jersey
35 = New Mexico
36 = New York
37 = North Carolina
38 = North Dakota
39 = Ohio
40 = Oklahoma
41 = Oregon
42 = Pennsylvania
44 = Rhode Island
45 = South Carolina
46 = South Dakota
47 = Tennessee
48 = Texas
49 = Utah
50 = Vermont
51 = Virginia
53 = Washington
54 = West Virginia
55 = Wisconsin
56 = Wyoming
60 = American Samoa
66 = Guam
69 = Northern Mariana Is.
72 = Puerto Rico
75 = Trust Territory of the Pacific Is.
78 = Virgin Islands

ADS extension of FIPS codes for Provinces of Canada

80 = Alberta, Canada
81 = British Columbia, Canada
82 = Manitoba, Canada
83 = New Brunswick, Canada
84 = Newfoundland, Canada
85 = Northwest Territories, Canada
86 = Nova Scotia, Canada
87 = Ontario, Canada
88 = Prince Edward Island, Canada
89 = Quebec, Canada
90 = Saskatchewan, Canada
91 = Yukon Territory, Canada

TABLE B.2 Network Codes

Net Code	Network Name
01	NADP
02	NTN
03	NTN+ (both NTN and NADP)
04	CAPMON
05	CANSAP
06	MAP3S/PCN
07	APIOS-D (daily)
08	UAPSP
09	APN
10	EPRI-SURE
11	WMO
12	APIOS-C (cumulative)
13	EPA-IV
14	GLAD

TABLE B.3 Instruments and Their Codes

Code	Instrument
A1	Aerochem Metrics model 201
A2	Aerochem Metrics model 301
A?	Aerochem Metrics model unknown
BN	Battelle Northwest
CM	Climatronics Metrics
H1	HASL (standard AEC model)
H2	HASL-ANL (Argonne ISWS model)
H3	HASL-ORNL (Oak Ridge model)
LM	Leonard Mold and Die
SA	Sangamo/MCI type A
S+	Sangamo/MCI A modified by APIOS
SC	Sangamo/MCI type C
SE	Sudbury Environmental Study (SES)

TABLE B.4 Analysis Laboratories and Their Code Names

Lab Code	Lab Name	Network Using Lab
BION	Bionetics Region V EPA	GLAD
GGC	Global Geochemistry Corp Canoga Park, California	EPA-IV
ISWS	Illinois State Water Survey	NADP NTN NTN+
LSBO	Laboratory Services Branch Ontario Ministry of Environment, Rexdale	APIOS-C APIOS-D
PNL	Pacific Northwest Laboratory Richland, Washington	MAP3S/PCN
REMS	Rockwell Environmental Monitoring and Services Center Newbury Park, California	EPRI-SURE UAPSP
RTI	Research Triangle Institute Research Triangle Park, North Carolina	EPA-IV
WQBO	Water Quality Branch [Ontario Region] Burlington, Ontario	CANSAP APN CAPMON

TABLE B.5 Network Notes and Note Codes

A Notes

These notes explain why one or more component results are not reported.

ADS Code	Note Description	Network	Network's Code
A00	sample period invented by ADS. No information supplied by network for this time span. Used for cumulative networks only.	ADS	
A01	indicates a trace; dilution was unwarranted	NADP	T
A02	insufficient sample for complete measurement	EPRI-SURE UAPSP	07
A03	rain gage inoperative, event dates and times are actually for collector placement and removal	EPRI-SURE UAPSP	08
A04	rain gage inoperative, event begin and end data and time estimated	EPRI-SURE UAPSP	09
A05	pH or conductivity or temperature meter inoperative	EPRI-SURE UAPSP	17
A06	Not available. Analyses are not yet available. These are predominately dry samples to be handled in a separate report.	NADP	NA
A07	No information. Information was never reported and will never be available for this collection period.	NADP	Field Note NN
A08	sample not submitted	APIOS	Field E
A09	sample lost	APIOS	Office X
A10	No sample. No data will be reported for this sample. These data have been excluded from the report for various reasons, including extreme contamination, lack of conforming to a definable sample type, leakage, or loss in the mail.	NADP	Field Note NS

TABLE B.5 Network Notes and Note Codes (Cont.)

ADS Code	Note Description	Network	Network's Code
A11	sampler malfunction	NADP	S
A12	bucket arrived dry	NADP	DA
A13	one or more deletions	CANSAP APN	5 5
A14	no sample available	CANSAP APN	8 8
A15	insufficient sample	CANSAP APN	9 9
A21	equipment failure - all of event missed	MAP3S/PCN	1121
A22	equipment failure - some data loss	MAP3S/PCN	1122
A23	contaminated and discarded in field	MAP3S/PCN	1123
A24	sample too aged for SO2 analysis	MAP3S/PCN	1124
A25	sample leaked in transit	MAP3S/PCN	1125
A26	sample inadvertently discarded in field	MAP3S/PCN	1126
A27	sample not shipped	MAP3S/PCN	1127
A28	sample spoiled before analysis	MAP3S/PCN	1128
A29	vandalism - some data loss	MAP3S/PCN	1129
A30	no explanation from operation	MAP3S/PCN	1130
A31	sampler malfunctioned	APIOS	Field F
A32	sample spilled or leaked	APIOS	Field G
A33	no precipitation collected	APIOS	Field K
A34	less than 0.1 inch of rainfall (observed in rain gage)	EPRI-SURE UAPSP	7
A35	missed event	EPRI-SURE UAPSP	29

TABLE B.5 Network Notes and Note Codes (Cont.)

B Notes

These notes relate to the quality of the sample, field conditions during the sample, etc. Presumably all components have a valid measurement if no notes more severe than A type notes are associated with the sample.

ADS Code	Note Description	Network	Network's Code
	The following four codes are being phased out, see B44-B46		
B01	sample was clear	NADP	Col. 69 = X
B02	sample was cloudy	NADP	Col. 70 = X
B03	sample contains floating matter	NADP	Col. 71 = X
B04	sample contains settled matter	NADP	Col. 72 = X
B05	insects in sample	APIOS CANSAP APN	Field A 3 3
B06	leaves in sample	APIOS	Field B
B07	particulates in sample	APIOS	Field C
B08	fibers in sample	APIOS	Field D
B09	sample contaminated	EPRI-SURE UAPSP	01
B10	noticeable suspended particulates	EPRI-SURE UAPSP	14
B11	sample manually collected in a clean bucket	EPRI-SURE UAPSP	12
B12	lid opened manually	EPRI-SURE UAPSP	13
B13	sample temperature above 10^{o} on arrival	EPRI-SURE UAPSP	15
B14	sample partially frozen on arrival in lab	EPRI-SURE UAPSP	18
B15	filtered samples	EPRI-SURE UAPSP	19

TABLE B.5 Network Notes and Note Codes (Cont.)

ADS Code	Note Description	Network	Network's Code
B16	fertilizing or spraying or harvesting near collector	EPRI-SURE UAPSP	22
B17	thunder during event	EPRI-SURE UAPSP	24
B18	dust or smoke in vicinity of sampler	EPRI-SURE UAPSP	26
B19	collected sample remained in sampler in excess of 24 hours	APIOS	Office Y
B20	alternate operator	EPRI-SURE UAPSP	28
B21	number of lid openings estimated	EPRI-SURE UAPSP	23
B22	water found in dry bucket	EPRI-SURE UAPSP	22
B23	soil in sample	CANSAP APN	1 1
B24	organic matter in sample	CANSAP APN	2 2
B31	alternate rain gage used	MAP3S/PCN	1231
B32	alternate collector used	MAP3S/PCN	1232
B33	wind problems	MAP3S/PCN	1233
B34	snowbridge or ice problems	MAP3S/PCN	1234
B35	overflow	MAP3S/PCN	1235
B36	sample frozen	MAP3S/PCN	1236
B37	late collection	MAP3S/PCN	1237
B38	organic debris in sample	MAP3S/PCN	1238
B39	unidentified debris in sample	MAP3S/PCN	1239
B40	flyash in sample	MAP3S/PCN	1240

TABLE B.5 Network Notes and Note Codes (Cont.)

ADS Code	Note Description	Network	Network's Code
B41	dust/dirt in sample	MAP3S/PCN	1241
B42	bird droppings in funnel	MAP3S/PCN	1242
B43	wet side open when not precipitating (ADS deposition type set to B = Bulk)	APIOS	Field J
B99	other	APIOS	Field Q

TABLE B.5 Network Notes and Note Codes (Cont.)

The following 12 note codes are derived from sections 5 and 6 of the NADP FIELD OBSERVATION REPORT FORM. The questions are:

5. SITE OPERATIONS
    1. Collector appears to have operated properly and sampled all precipitation events during entire sample period.
    2. Rain gage appears to have operated properly during the week.
    3. Collector opened and closed at least once during the week, other than for testing.

6. SAMPLE CONDITION
    1. Bird Droppings
    2. Cloudy or Discolored
    3. Unusual amounts of soot or dirt for this site

The ADS note codes are:

Note Code	Answer	Question
B44	Yes	6.1
B45	Yes	6.2
B46	Yes	6.3
B47	Yes	5.1
B48	No	5.1
B49	Blank	5.1
B50	Yes	5.2
B51	No	5.2
B52	Blank	5.2
B53	Yes	5.3
B54	No	5.3
B55	Blank	5.3

Note that no ADS notes are recorded if the answers to questions 6.1, 6.2 or 6.3 are No or Blank.

TABLE B.5 Network Notes and Note Codes (Cont.)

C Notes

These notes relate to the quantity of the sample.

ADS Code	Note Description	Network	Network's Code
C01	sampling period longer than normal	NADP	LD
C02	Sample protocol problem. Sample does not meet NADP sampling protocol requirements. The sample probably characterizes the individual site adequately, but is not suitable for across site comparisons. Examples of this problem include nonapproved sampling sites, nonapproved sampling equipment, and nonapproved or irregular sampling intervals.	NADP	SP
C03	non-standard collection period	APIOS	Office Z
C04	composite sample of two or more events	EPRI-SURE UAPSP	16
C05	possible sample leakage in shipping	EPRI-SURE UAPSP	5
C06	indicates that the sample had to be diluted for analysis; 50 ml of water was added	NADP	WA
C07	sampler inoperative - incomplete collection	EPRI-SURE UAPSP	6
C08	sample spilled - partially lost	EPRI-SURE UAPSP	2
C09	note sampling period	CANSAP APN	7 15
C21	two events combined	MAP3S/PCN	1321
C22	more than two events combined	MAP3S/PCN	1322
C23	weekly sample	MAP3S/PCN	1323

TABLE B.5 Network Notes and Note Codes (Cont.)

D Notes

These notes explain why one or more measurements is suspect.

ADS Code	Note Description	Network	Network Code
D01	volume incorrect	APIOS	Field H
D02	poor calculated/observed conductance balance	APIOS	Office C
D03	Δ pH large	APIOS	Office J
D04	one or more parameters high	APIOS	Office L
D05	poor ionic balance	APIOS	Office M
D06	abnormal sampler efficiency	APIOS	Office N
D07	operator error during field pH measurement	EPRI-SURE UAPSP	01
D08	operator error in field conductivity measurement	EPRI-SURE UAPSP	25
D09	field pH suspect due to QC sample failure	EPRI-SURE UAPSP	27
D10	field conductivity suspect due to QC sample failure	EPRI-SURE UAPSP	21
D11	significant evaporation effect	CANSAP APN	4 4
D12	sea salt in sample	CANSAP	6
D21	equipment failure - part of event missed	MAP3S/PCN	1421
D22	possible operator contamination	MAP3S/PCN	1422
D23	field pH suspect due to procedure	MAP3S/PCN	1423
D24	predicted volume suspect due to rain gage problems	MAP3S/PCN	1424
D25	event(s) missed	APIOS	Field I

TABLE B.5 Network Notes and Note Codes (Cont.)

ADS Code	Note Description	Network	Network Code
D26	part of event missed	APIOS	Field L
D27	calculated/observed pH discrepancy	APIOS	Office H
D28	free Hydrogen exceeds total Hydrogen	APIOS	Office T
D29	discrepancy between lab and field measurements of pH	EPRI-SURE UAPSP	6 in pH
D30	discrepancy between lab and field measurements of conductivity	EPRI-SURE UAPSP	6 in COND
D31	standard precipitation amount accumulated, see subsequent record	APN	16.0
D32	multiple standard precipitation, this record covers two samples	APN	16.2
D33	multiple standard precipitation, this record covers three samples	APN	16.3
D34	multiple standard precipitation, this record covers four samples	APN	16.4
D35	multiple standard precipitation this record covers five samples	APN	16.5

TABLE B.6 ADS Components

Component			
Number	Code	Name of Component	Standard Units
10	COND	Specific Conductance (Lab)	μ mho/cm
11	CONF	Specific Conductance (Field)	μ mho/cm
20	PH	pH (Lab)	pH units
21	PH-F	pH (Field)	pH units
22	ACID	Acidity	μ eq/l
23	ALK	Alkalinity	μ eq/l
24	S-AC	Strong Acid	μ eq/l
25	W-AC	Weak Acid	μ eq/l
26	T-AC	Total Acidity	μ eq/l
30	SO2	Sulfur-IV (Sulfite)	μ mole/l
31	SO4	Sulfur-VI (Sulfate)	μ mole/l
32	S	Sulfur (sulfite + sulfate)	μ mole/l
33	NO2	Nitrite	μ mole/l
34	NO3	Nitrate	μ mole/l
35	NOX	Nitrite + Nitrate	μ mole/l
36	CL	Chloride	μ mole/l
37	PO4	Phosphate (Ortho-)	μ mole/l
40	H	H+ (free)	μ mole/l
41	NH4	Ammonium	μ mole/l
42	NA	Sodium	μ mole/l
43	K	Potassium	μ mole/l
44	AL	Aluminum	μ mole/l
45	CA	Calcium	μ mole/l
46	MG	Magnesium	μ mole/l
60	F	Fluorine	μ mole/l
61	BR	Bromine	μ mole/l
62	I	Iodine	μ mole/l
70	HG	Mercury	μ mole/l
71	CD	Cadmium	μ mole/l
72	Cu	Copper	μ mole/l
73	FE	Iron	μ mole/l
74	MN	Manganese	μ mole/l
75	NI	Nickel	μ mole/l
76	PB	Lead	μ mole/l
77	ZN	Zinc	μ mole/l
78	V	Vanadium	μ mole/l
90	INN	Inorganic Nitrogen	μ mole/l
91	TOTN	Total Nitrogen	μ mole/l
92	INP	Inorganic Phosphorus	μ mole/l
93	TOTP	Total Phosphorus	μ mole/l
96	TOTS	Total Sulfur	μ mole/l
98	TOC	Total Organic Carbon	μ mole/l

TABLE B.7 Conversion Factors for ADS Components 30-78 μ mole/l to* or from** other units.

Number	Code	μ eq/l	mg/l	mg S/l	mg N/l
30	SO2	2	0.080	0.032	
31	SO4	2	0.096	0.032	
32	S	1	0.096	0.032	
33	NO2	1	0.046		0.014
34	NO3	1	0.062		0.014
35	NOX	1	0.062		0.014
36	CL	1	0.0355		
37	PO4	3	0.095		
40	H	1	0.001		
41	NH4	1	0.018		0.014
42	NA	1	0.023		
43	K	1	0.039		
44	AL	3	0.027		
45	CA	2	0.040		
46	MG	2	0.024		
60	F	1	0.019		
61	BR	1	0.080		
62	I	1	0.127		
70	HG	1	0.201		
71	CD	1	0.112		
72	CU	1	0.0635		
73	FE	1	0.056		
74	MN	1	0.055		
75	NI	1	0.059		
76	PB	1	0.207		
77	ZN	1	0.065		
78	V	1	0.051		

* To convert from μ mole/l to a nonstandard unit, multiply by the constant listed in the appropriate column.

** To convert to μ mole/l from a nonstandard unit, divide by the constant listed in the appropriate column.

TABLE B.8 Generic Analysis Methods and Codes

Method Code Generic	Method Name (Generic)
01	Conductivity Cell
02	Electrode
03	Glass Electrode
04	Titration-Potentiometric
05	Titration-Coulometric
06	Titration-Other
07	Colorimetry
08	Ion Chromatography
09	Flame Atomic Absorption
10	Flameless Atomic Absorption
11	Flame Photometry
12	Oxidation, NDIR
13	X-Ray Fluoresence
14	Specific Ion Electrode
15	Flame Emission Spectrophotometry
16	Colorimetry or Ion Chromatography
17	Inductively Coupled Plasma

TABLE B.9 Analysis Instruments and Codes

Instrument Code	Instrument Name
A1	To PH 8.3
BA	Beckman Model 55-2 and Combination Electrode
BY	Beckman Model 55-2 and Yellow Springs Electrode
CA	Corning Model 135 and Fisher 13-639-90 Electrode
C1	"Classical"
DA	Dionex Model 10
DB	Dionex Model 12
DC	Dionex Model 14
FA	Fisher Model 230A - Misc. Electrodes
G1	Gran
IA	Instrumentation Laboratories Models 353-151
MA	Markson Electromark (4405) - Ceramic Cell
MB	Markson Model R-10
MC	Markson Model R-90 and Combination Electrode
M1	Miscellaneous Meters and Electrodes
OA	Orion Model 811 and Beckman Futura Electrode
OB	Orion Model 801 and Miscellaneous Electrode
OC	Oceanography Instruments Model 0524B Analyzer
PA	Perkin-Elmer Model 306
PB	Perkin-Elmer Model 372
PC	Perkin-Elmer Model HG2100 (Graphite Furnace)
RA	Radiometer Model
RB	Radiometer Model
TA	Technicon Autoanalyzer
TD	Technicon Autoanalyzer or Dionex Model
YA	Yellow Springs - Glass Electrode

Note that these codes are always used in conjunction with those in Table B.8 as in the following examples

Analysis Method	Translation
07TA	Colorimetry, Technicon Autoanalyzer
06G1	Titration-Other, Gran
10??	Flameless Atomic Absorption, instrument not specified
08DA	Ion Chromatography, Dionex Model 10

APPENDIX C

NETWORK SITES INCLUDED IN ADS

Sites with data currently available from ADS are presented in Appendix C. Figures C.1 through C.9 show the geographical distribution of the sites by network. Appendix C contains two tables, C.1 and C.2. Table C.1 presents the ADS sites sorted by ADS identification. Only a few data items from the site file are presented. The first column is the ADS SITE IDENT, the first four characters of the full ADS site identification. Thus, there is one line in the table per collector. This table includes sites for which data is not yet available in the ADS.

The second column is the network code as translated by Table B.2. The third column is the SITE-NAME concatenated with the FIPS-STATE as translated by Table B.1. The fourth column is the LATITUDE presented here without the "N" since all sites except American Samoa "172a" are in the Northern Hemisphere. The fifth column is LONGITUDE, presented without the "W" since all sites are in the Western Hemisphere. Both latitude and longitude are shown in degrees, minutes and seconds.

The sixth column is ELEVATION of the station in meters above sea level. This data is not available for a few sites, and "9999" is shown in those cases. The last column is the first active date for the site. This is the date the network reported that the site became active. It is not necessarily the date of the first sample which is stored in ADS.

Table C.2 presents the ADS sites sorted by state. This table includes the basic site identification from Table C.1 along with one line for each protocol revision. The sites are sorted by ADS-IDENT within FIPS-STATE.

The first three columns in Table C.2 repeat those of C.1 although the site name is presented without the state because the state is presented as a heading for each group of sites. The fourth column is the SAROAD-IDENT which is discussed in Section 4. The next three columns, latitude, longitude and elevation, are repeated from Table C.1.

The seven columns on the right side of Table C.2 are specific to each protocol revision. The first of these is the ADS revision number, the next two are the dates for which the revision is in effect. If the revision is currently in effect, the column labeled REV END contains "9/99". The next column, labeled COLL INST, contains the code for the precipitation collection instrument as defined in Table B.3. The column labeled SAMPLING PERIOD contains the protocol sampling period code as defined in Section 4. The column labeled LAB CODE is the analytical laboratory code as translated by Table B.4. The final column, labeled NUM COMP PER SAMP, contains the number of components which the network measures on a normal sample.

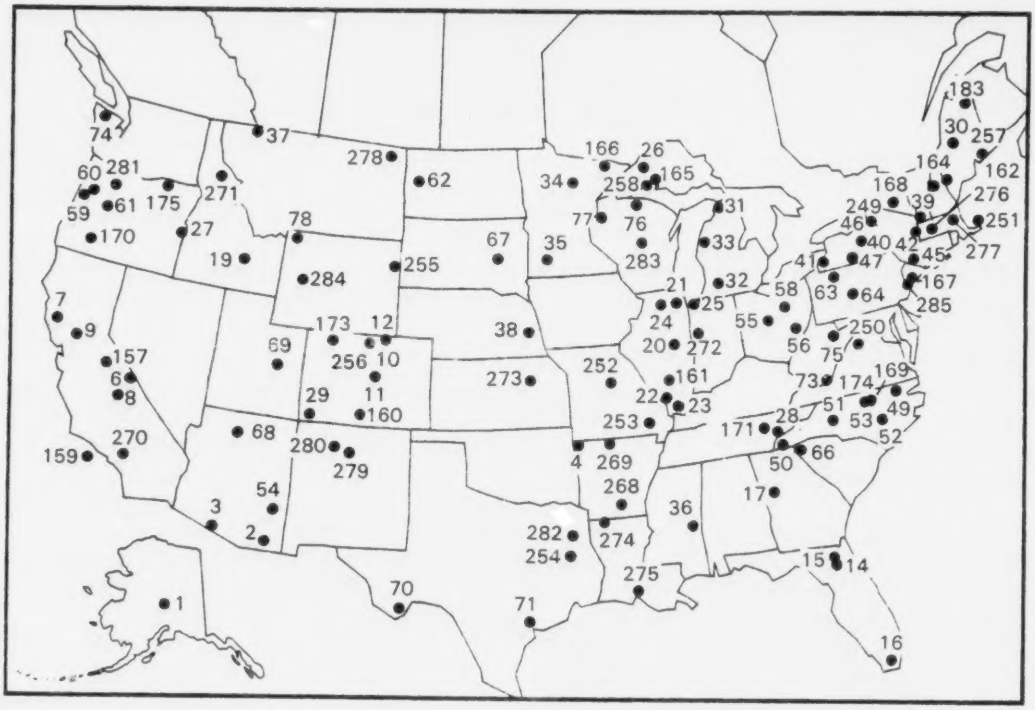

FIGURE C.1. NADP Sites Identified by ADS Code

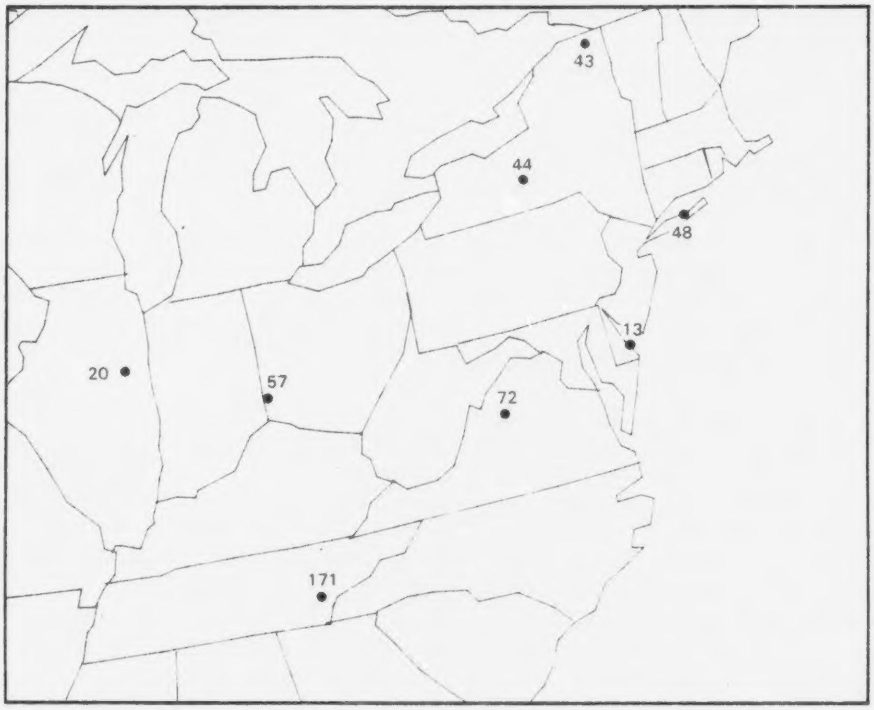

FIGURE C.2. MAP3S/PCN Sites Identified by ADS Code

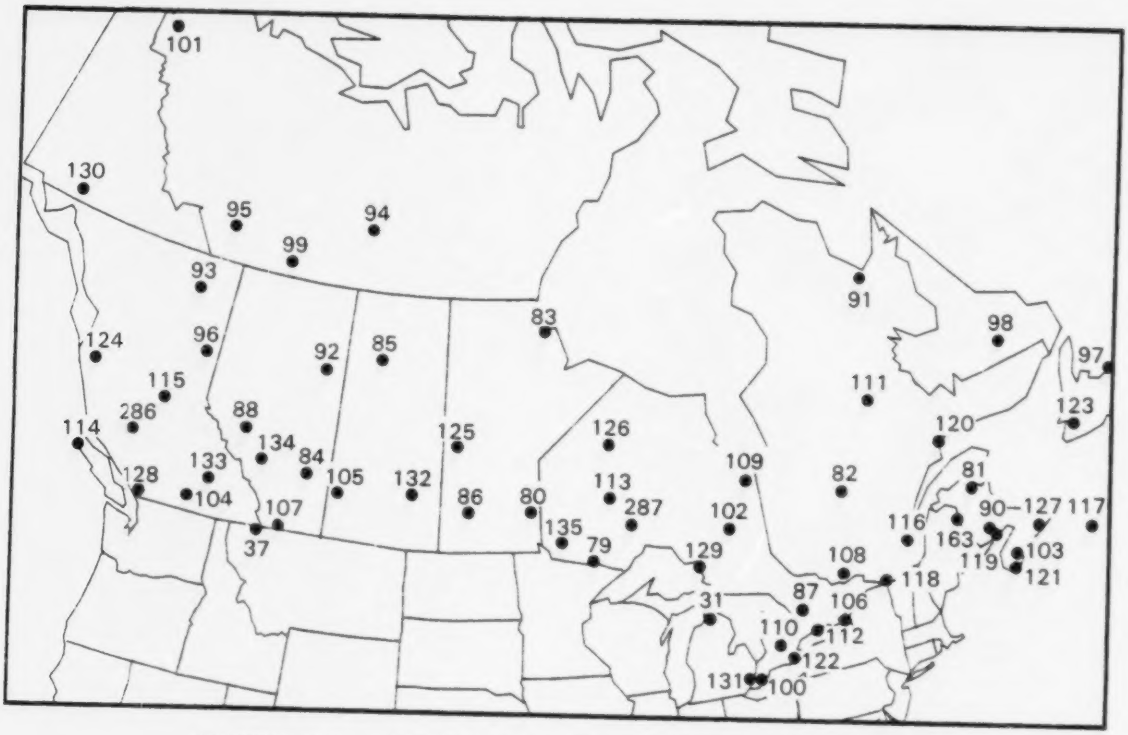

FIGURE C.3. CANSAP Sites Identified by ADS Code

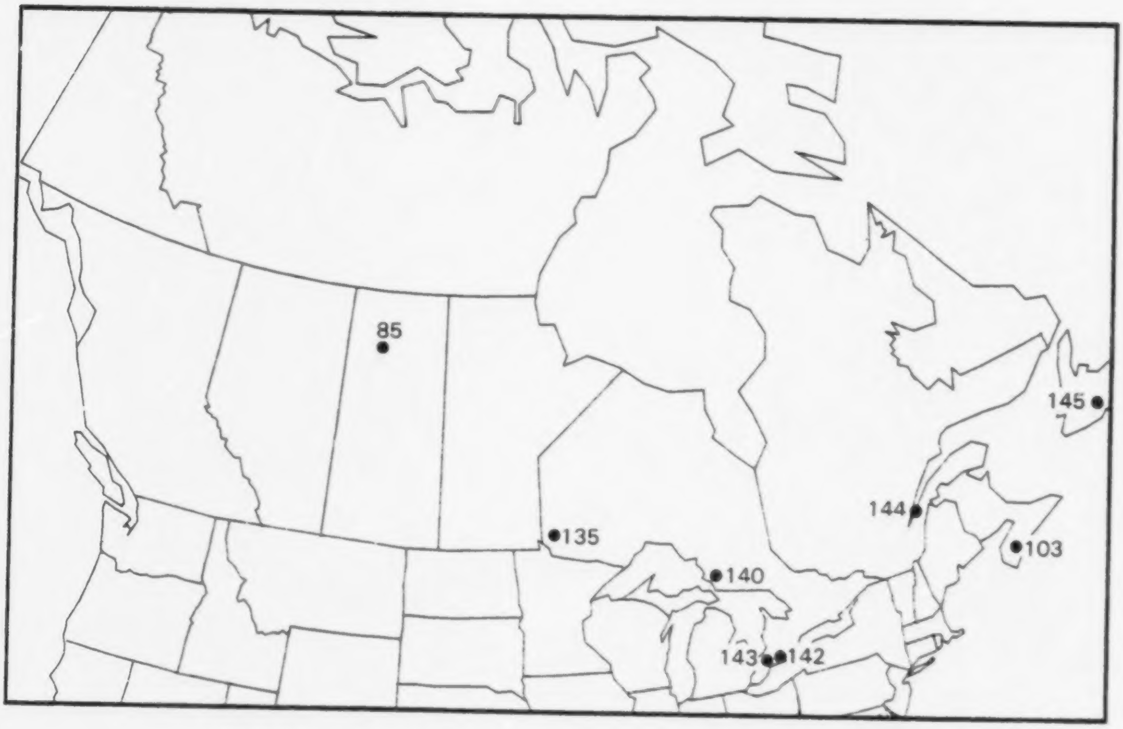

FIGURE C.4. APN Sites Identified by ADS Code

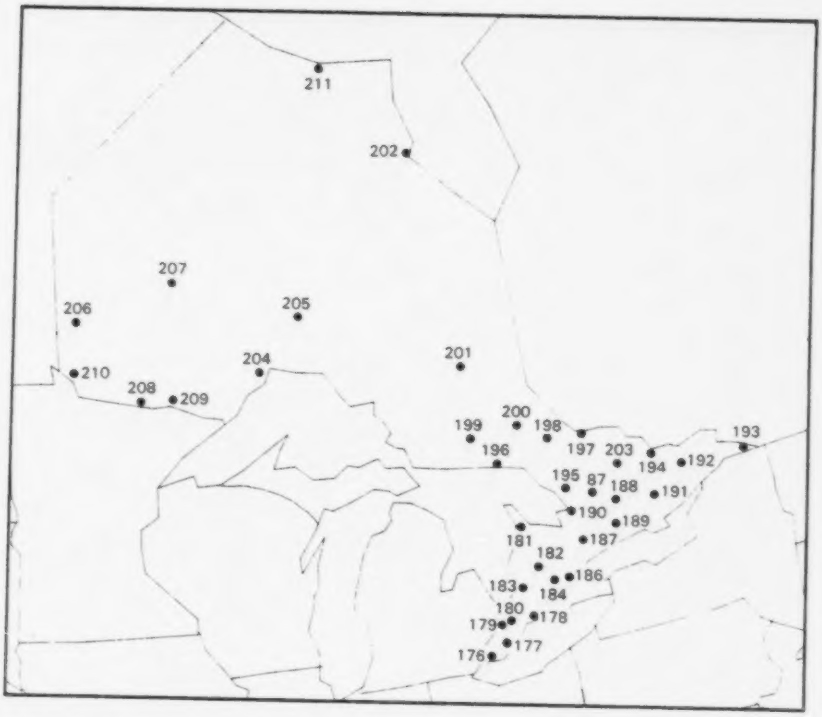

FIGURE C.5. APIOS-C Sites Identified by ADS Code

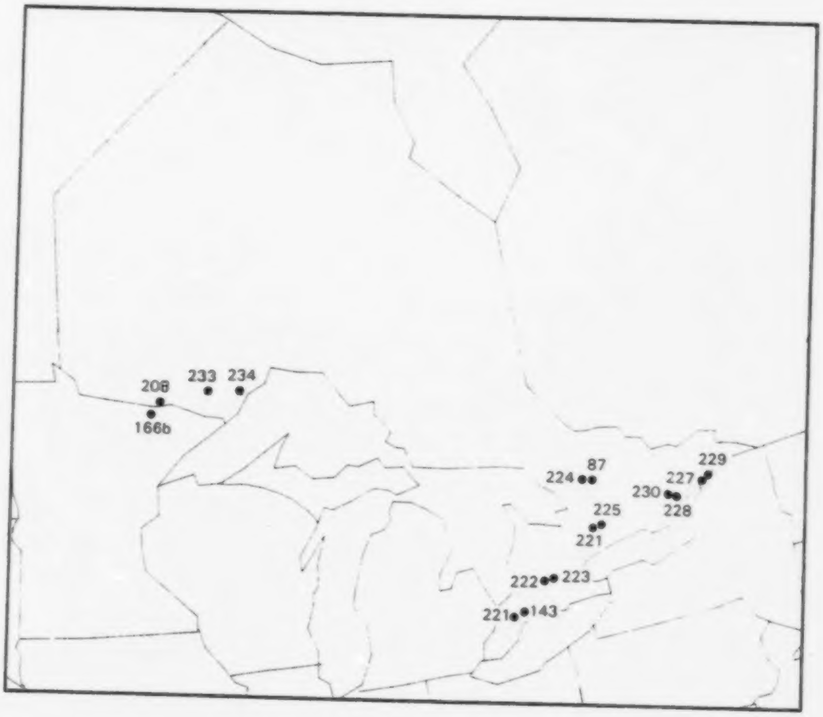

FIGURE C.6. APIOS-D Sites Identified by ADS Code

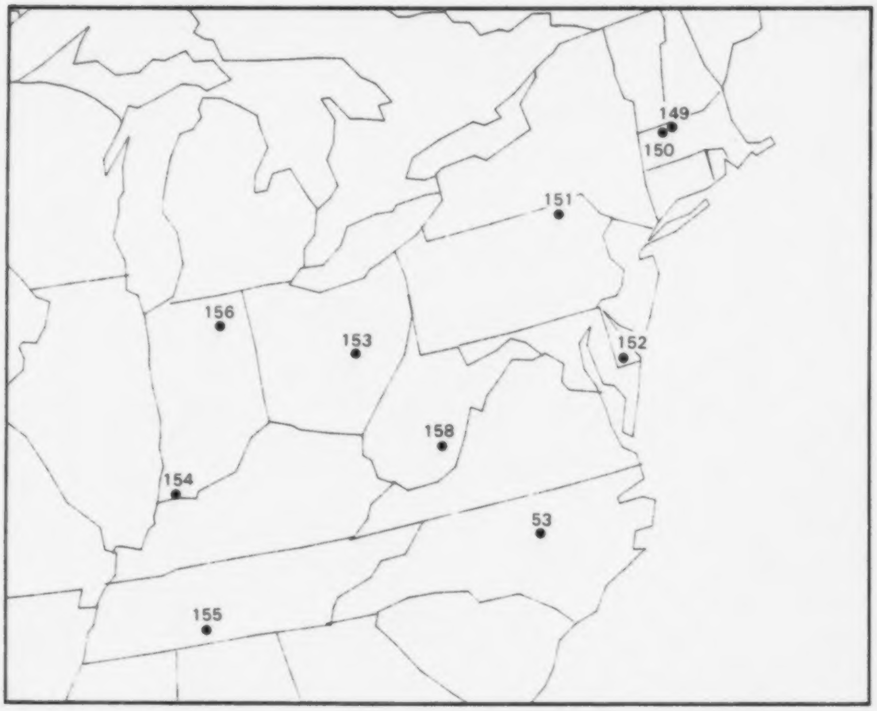

FIGURE C.7. EPRI/SURE Sites Identified by ADS Code

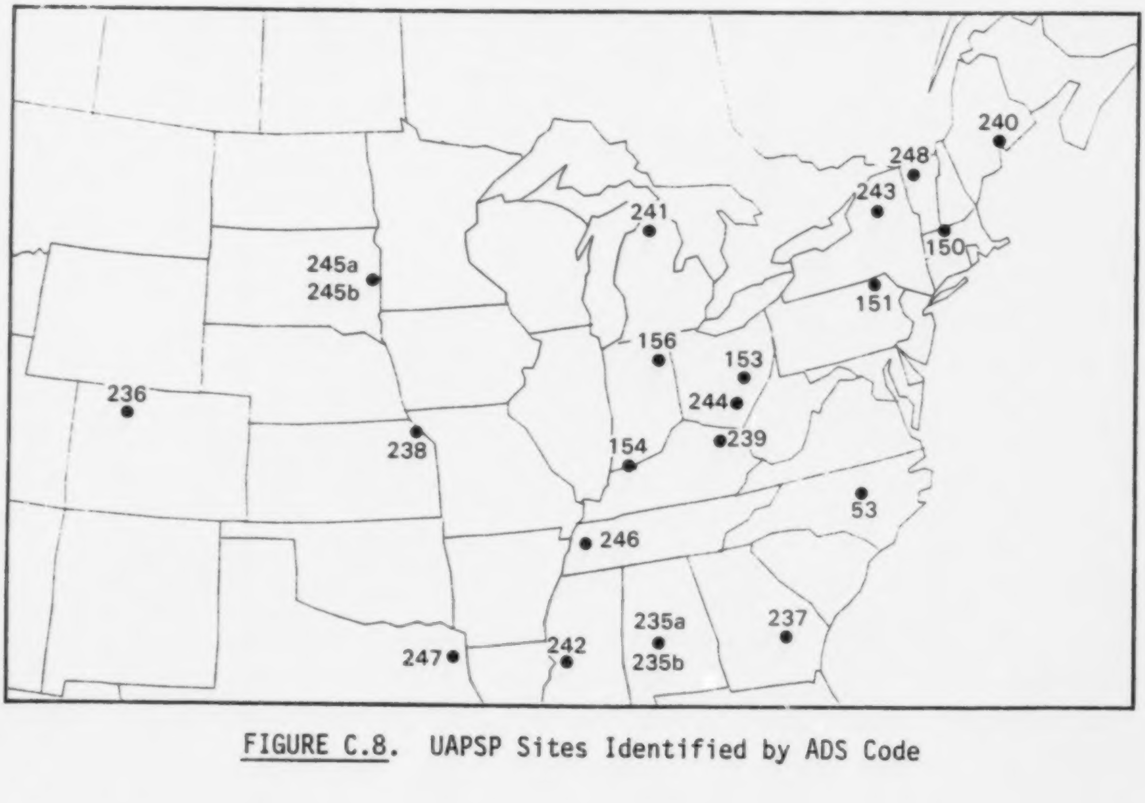

FIGURE C.8. UAPSP Sites Identified by ADS Code

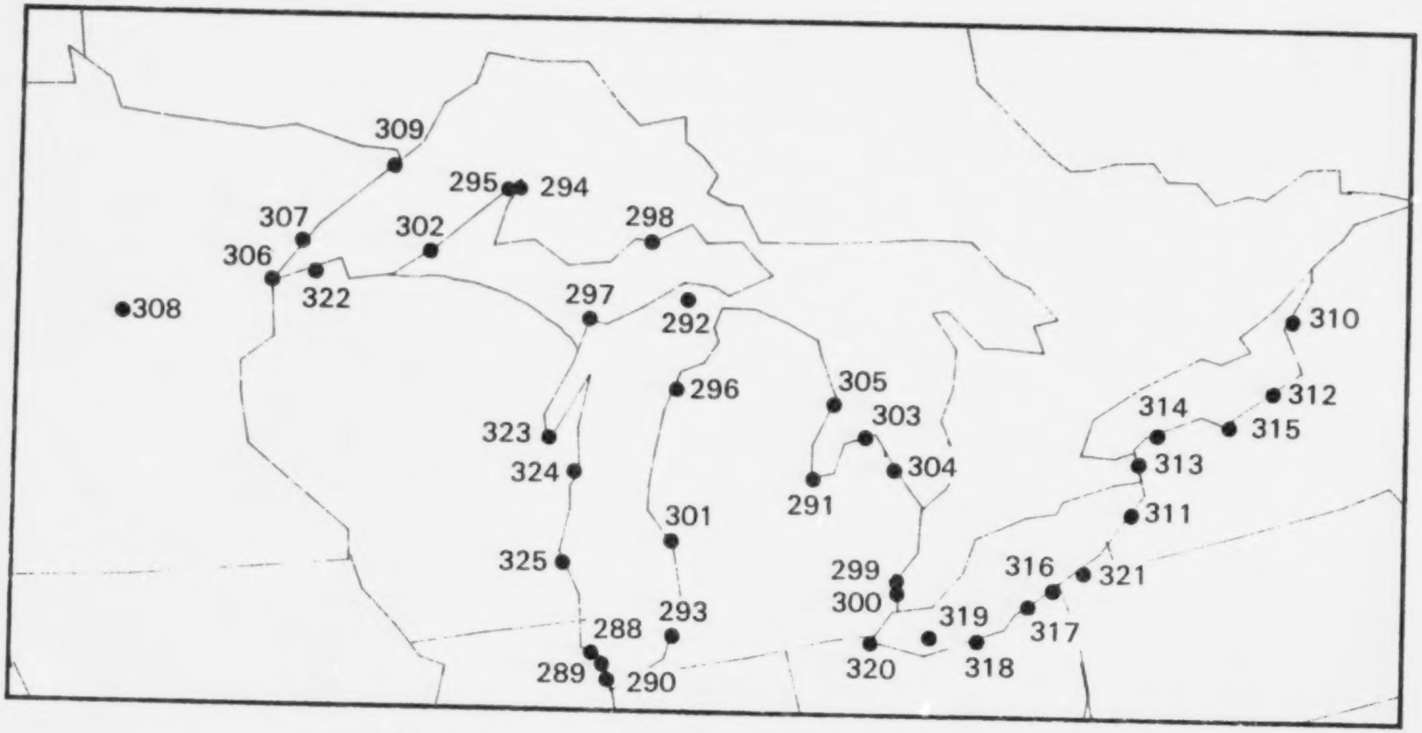

FIGURE C.9. GLAD Sites Identified by ADS Code

TABLE C.1

ADS sites, sorted by ADS identification

23-Jul-1984
Page 1

ADS SITE IDENT	NET WORK	NET SITE IDENT	SITE NAME	LATITUDE			LONGITUDE			ELEVATION (meters)	FIRST ACTIVE DATE
				d	m	s	d	m	s		
001a	NADP	020390	Mt. Mckinley Park, Alaska	63	43	27	148	57	55	649	Jun 17, 1980
002a	NADP	030180	Tombstone, Arizona	31	42	30	110	03	24	1398	Mar 27, 1979
003a	NADP	030620	Organ Pipe Mon., Arizona	31	57	02	112	48	00	506	Apr 15, 1980
004a	NADP	042700	Fayetteville, Arkansas	36	06	02	94	10	24	391	May 13, 1980
006a	NADP	053460	Bishop, California	37	22	15	118	21	59	1252	Apr 15, 1980
007a	NADP	054540	Hopland (Ukiah), California	39	00	17	123	05	05	253	Oct 3, 1979
008a	NADP	057550	Sequoia Nat. Park, California	36	34	09	118	46	40	1856	Jul 8, 1980
009a	NADP	058840	Davis, California	38	32	07	121	46	30	18	Oct 17, 1978
010a	NADP	061910	Rocky Mt. Nat Park, Colorado	40	21	52	105	33	37	2369	May 29, 1980
011a	NADP	062120	Manitou, Colorado	39	06	04	105	05	31	2362	Oct 17, 1978
012a	NADP	062220	Pawnee, Colorado	40	48	23	104	45	15	1641	May 22, 1979
013a	MAP3s/PCN	7	Lewes, Delaware	38	46	00	75	00	00	0	Feb 28, 1978
014a	NADP	100020	Austin-Cary Forest, Florida	29	45	37	82	11	56	46	Oct 10, 1978
015a	NADP	100360	Bradford Forest, Florida	29	58	29	82	11	53	44	Oct 10, 1978
016a	NADP	101190	Everglades Nat. Pa, Florida	25	23	40	80	41	45	2	Jun 17, 1980
017a	NADP	114140	Georgia Station, Georgia	33	10	40	84	24	22	270	Oct 3, 1978
018a	NADP	120080	Mauna Loa, Hawaii	19	32	22	155	34	45	3426	Jun 10, 1980
019a	NADP	130340	Craters of Moon, Idaho	43	27	48	113	33	31	1806	Aug 22, 1980
020a	NADP	141160	Bondville, Illinois	40	03	12	88	22	19	212	Feb 27, 1979
020b	MAP3s/PCN	5	Illinois, Illinois	40	03	12	88	22	19	212	Nov 19, 1977
021a	NADP	141980	Argonne, Illinois	41	42	04	87	59	43	229	Mar 11, 1980
022a	NADP	143580	Southern Ill U, Illinois	37	42	36	89	16	08	146	Jul 31, 1979
023a	NADP	146340	Dixon Springs, Illinois	37	26	08	88	40	19	161	Jan 30, 1979
024a	NADP	141800	NIARC, Illinois	41	50	29	88	51	04	265	Jan 1, 1981
025a	NADP	153420	Indiana Dunes, Indiana	41	37	57	87	05	16	208	Jul 15, 1980
026a	NADP	232570	Isle Royal Park, Michigan	47	54	43	89	09	10	209	Aug 12, 1980
027a	NADP	381120	Vines Hill, Oregon	43	53	57	117	25	37	904	Jul 15, 1980
028a	NADP	441190	Elkmont, Tennessee	35	39	52	83	35	25	640	Aug 12, 1980
029a	NADP	061530	Mesa Verde, Colorado	37	11	56	108	29	26	2172	Apr 28, 1981
030a	NADP	200935	Greenville Station, Maine	45	29	23	69	39	52	322	Nov 20, 1979
031a	NADP	230920	Douglas Lake, Michigan	45	33	40	84	40	42	233	Jul 3, 1979
031b	CANSAP	13 020	Pellston, Michigan	45	33	40	84	40	42	233	Jul 1, 1979
032a	NADP	232660	Kellogg, Michigan	42	24	37	85	23	34	288	Jun 26, 1979
033a	NADP	235340	Wellston, Michigan	44	13	28	85	49	07	292	Oct 10, 1978
034a	NADP	241660	Marcell, Minnesota	47	31	52	93	28	07	431	Jul 6, 1978
035a	NADP	242720	Lamberton, Minnesota	44	14	14	95	18	02	343	Jan 2, 1979
036a	NADP	251460	Meridian, Mississippi	32	20	04	88	44	42	89	Apr 15, 1980
037a	NADP	270570	Glacier Nat Park, Montana	48	30	37	113	59	44	968	Jun 3, 1980
037b	CANSAP	13 010	Glacier Nat Park, Montana	48	30	37	113	59	44	968	Jun 1, 1980
038a	NADP	281520	Mead, Nebraska	41	09	11	96	29	34	352	Jul 25, 1978
039a	NADP	300240	Hubbard Brook, New Hampshire	43	56	35	71	42	12	250	Jul 25, 1978
040a	NADP	330860	Aurora, New York	42	44	02	76	39	35	249	Apr 17, 1979
041a	NADP	331000	Chautauqua, New York	42	17	58	79	23	47	488	Jun 10, 1980
042a	NADP	331220	Knobit, New York	42	22	41	73	30	10	406	Jan 2, 1980
043a	MAP3s/PCN	1	Whiteface, New York	44	23	26	73	51	34	610	Oct 10, 1976
044a	MAP3s/PCN	2	Ithaca, New York	42	24	03	76	39	12	509	Oct 25, 1976
045a	NADP	335140	Stilwell Lake, New York	41	21	00	74	02	22	186	Jun 26, 1979
046a	NADP	335240	Bennett Bridge, New York	43	31	34	75	56	50	245	Jun 10, 1980
047a	NADP	336500	Jasper, New York	42	06	22	77	32	08	634	Feb 19, 1980
048a	MAP3s/PCN	6	Brookhaven, New York	40	52	00	72	53	00	25	Feb 8, 1978
049a	NADP	340320	Lewiston, North Carolina	36	07	40	77	10	30	26	Oct 31, 1978
050a	NADP	342500	Coweeta, North Carolina	35	03	38	83	25	50	686	Jul 5, 1978
051a	NADP	343460	Piedmont Station, North Carolina	35	41	48	80	37	22	221	Oct 17, 1978
052a	NADP	343560	Clinton Station, North Carolina	35	01	26	78	16	45	47	Oct 24, 1978

ADS sites, sorted by ADS identification

ADS SITE IDENT	NET WORK	NET SITE IDENT	SITE NAME	LATITUDE d m s	LONGITUDE d m s	ELEVATION (meters)	FIRST ACTIVE DATE
053a	NADP	344160	Finley (A), North Carolina	35 43 43	78 40 52	119	Oct 3, 1978
053b	NADP	344161	Finley (B), North Carolina	35 43 43	78 40 52	119	Oct 3, 1978
053c	EPRI-SURE	08	Raleigh, North Carolina	35 43 43	78 40 48	128	Aug 1, 1978
053d	EPRI-SURE	08 smplr 2	Raleigh-2, North Carolina	35 43 43	78 40 48	128	Aug 1, 1978
054a	NADP	030360	Oliver Knoll, Arizona	33 04 17	109 51 53	1173	Aug 25, 1981
055a	NADP	361760	Delaware, Ohio	40 21 19	83 03 58	285	Oct 3, 1978
056a	NADP	364900	Caldwell, Ohio	39 47 34	81 31 52	276	Sep 26, 1978
057a	MAP3s/PCN	8	Oxford, Ohio	39 31 51	84 43 25	284	Sep 30, 1980
058a	NADP	367160	Wooster, Ohio	40 46 48	81 55 31	315	Sep 26, 1978
059a	NADP	380200	Alsea, Oregon	44 23 13	123 37 22	84	Dec 27, 1979
060a	NADP	380201	Schmidt Farm, Oregon	44 37 35	123 12 50	69	Dec 26, 1979
061a	NADP	381020	H.J. Andrews, Oregon	44 13 23	122 14 32	472	May 13, 1980
062a	NADP	350700	Teddy Roosevelt NP, North Dakota	47 36 09	103 15 54	618	May 5, 1981
063a	NADP	392940	Kane, Pennsylvania	41 35 52	78 46 04	618	Jul 18, 1978
064a	NADP	394200	Leading Ridge, Pennsylvania	40 39 32	77 56 10	282	Apr 25, 1979
065a	MAP3s/PCN	3	Penn State, Pennsylvania	40 47 18	77 56 47	393	Sep 21, 1976
066a	NADP	421880	Clemson, South Carolina	34 40 28	82 50 09	221	Mar 27, 1979
067a	NADP	430060	Huron, South Dakota	44 23 02	98 13 14	390	Apr 30, 1980
068a	NADP	030370	Grand Canyon, Arizona	36 04 18	112 09 11	2152	Aug 11, 1981
069a	NADP	460280	Cedar Mt, Utah	39 10 15	110 37 05	2356	May 11, 1981
070a	NADP	450425	K-Bar, Texas	29 18 07	103 10 38	1056	Apr 10, 1980
071a	NADP	455350	Victoria, Texas	28 50 43	96 55 12	31	Apr 15, 1980
072a	MAP3s/PCN	4	Virginia, Virginia	38 02 23	78 32 31	172	Dec 11, 1976
073a	NADP	481300	Horton Station, Virginia	37 20 06	80 33 28	1051	Jul 25, 1978
074a	NADP	491410	Olympic Nat. Park, Washington	47 51 36	123 55 57	176	May 20, 1980
075a	NADP	501860	Parsons, West Virginia	39 05 23	79 39 44	305	Jul 5, 1978
076a	NADP	513640	Trout Lake, Wisconsin	46 03 09	89 39 11	501	Jan 22, 1980
077a	NADP	513700	Spooner, Wisconsin	45 49 21	91 52 30	331	Jun 3, 1980
078a	NADP	520860	Yellowstone, Wyoming	44 55 02	110 25 13	1912	Jun 5, 1980
079a	CANSAP	07 050	Atikokan, Ontario	48 45 00	91 37 00	393	Apr 1, 1977
080a	CANSAP	06 030	Bissett, Manitoba	51 02 00	95 40 00	258	May 1, 1977
081a	CANSAP	09 000	Charlo, New Brunswick	48 00 00	66 20 00	38	May 1, 1977
082a	CANSAP	08 030	Chibougamau, Quebec	49 49 00	74 25 00	402	Apr 1, 1977
083a	CANSAP	06 000	Churchill, Manitoba	58 45 00	94 04 00	29	Jun 1, 1977
084a	CANSAP	04 030	Cononation, Alberta	52 04 00	111 27 00	791	Apr 1, 1977
085a	CANSAP	05 000	Cree Lake, Saskatchewan	57 21 00	107 08 00	499	May 1, 1977
085b	APN	05 001	Cree Lake, Saskatchewan	57 21 00	107 08 00	499	Jul 8, 1982
086a	CANSAP	06 020	Dauphin, Manitoba	51 06 00	100 03 00	305	Apr 1, 1977
087a	CANSAP	07 060	Dorset, Ontario	45 13 00	78 56 00	319	Jul 1, 1979
087b	APIOS-D	3011	Dorset, Ontario	45 13 23	78 55 49	320	Jul 14, 1980
087c	APIOS-C	3011	Dorset, Ontario	45 13 26	78 55 52	320	May 31, 1980
088a	CANSAP	04 010	Edson, Alberta	53 35 00	116 27 00	925	Jan 1, 1974
089a	CANSAP	01 000	Mould Bay, Northwest Territories	76 14 00	119 20 00	15	Jan 1, 1975
090a	CANSAP	09 010	Acadia Fes, New Brunswick	46 00 00	66 22 00	61	Nov 1, 1979
091a	CANSAP	08 000	Fort Chimo, Quebec	58 06 00	68 25 00	36	Apr 1, 1977
092a	CANSAP	04 000	Fort McMurray, Alberta	56 39 00	111 13 00	369	May 1, 1977
093a	CANSAP	03 000	Fort Nelson, British Columbia	58 50 00	122 36 00	925	Jun 1, 1977
094a	CANSAP	01 020	Fort Reliance, Northwest Territories	62 43 00	109 10 00	164	Jul 1, 1977
095a	CANSAP	01 030	Fort Simpson, Northwest Territories	61 45 00	121 14 00	169	Jan 1, 1974
096a	CANSAP	03 010	Fort St. John, British Columbia	56 14 00	120 44 00	695	Jun 1, 1977
097a	CANSAP	12 010	Gander, Newfoundland	48 57 00	54 34 00	151	May 1, 1977
098a	CANSAP	12 000	Goose, Newfoundland	53 19 00	60 25 00	36	Jul 1, 1977
099a	CANSAP	01 040	Hay River, Northwest Territories	60 50 00	115 47 00	166	Feb 1, 1980
100a	CANSAP	07 120	Harrow, Ontario	42 02 00	82 54 00	191	Jan 1, 1980

ADS sites, sorted by ADS identification

ADS SITE IDENT	NET WORK	NET SITE IDENT	SITE NAME	LATITUDE d m s	LONGITUDE d m s	ELEVATION (meters)	FIRST ACTIVE DATE
101a	CANSAP	01 010	Inuvik, Northwest Territories	68 18 00	133 29 00	68	Jun 1, 1977
102a	CANSAP	07 030	Kapuskasing, Ontario	49 24 00	82 26 00	227	Oct 1, 1979
103a	CANSAP	10 020	Kejimkujik, Nova Scotia	44 25 58	65 12 20	152	Jun 1, 1978
103b	APN	10 019	Kejimkujik, Nova Scotia	44 25 58	65 12 20	152	May 11, 1979
104a	CANSAP	03 070	Kelowna, British Columbia	49 58 00	119 23 00	430	May 1, 1977
105a	CANSAP	05 010	Kindersley, Saskatchewan	51 28 00	109 10 00	683	Apr 1, 1977
106a	CANSAP	07 070	Kingston, Ontario	44 13 00	76 36 00	92	May 1, 1977
107a	CANSAP	04 040	Lethbridge, Alberta	49 38 13	112 47 16	913	May 1, 1977
108a	CANSAP	08 050	Maniwaki, Quebec	46 23 00	75 58 00	170	May 1, 1975
109a	CANSAP	07 010	Moosonee, Ontario	51 16 00	80 39 00	10	May 1, 1977
110a	CANSAP	07 090	Mount Forest, Ontario	43 59 29	80 44 46	410	Jul 1, 1973
111a	CANSAP	08 010	Nitchequon, Quebec	53 12 00	70 54 00	536	Apr 1, 1977
112a	CANSAP	07 080	Peterborough, Ontario	44 14 00	78 21 00	191	May 1, 1977
113a	CANSAP	07 020	Pickle Lake, Ontario	51 28 00	90 12 00	369	Feb 1, 1977
114a	CANSAP	03 040	Port Hardy, British Columbia	50 41 00	127 22 00	22	May 1, 1977
115a	CANSAP	03 030	Prince George, British Columbia	53 53 00	122 40 00	691	Apr 1, 1977
116a	CANSAP	08 040	Quebec City, Quebec	46 48 00	71 24 00	73	Apr 1, 1977
117a	CANSAP	10 010	Sable Island, Nova Scotia	43 56 00	60 01 00	4	Mar 1, 1975
118a	CANSAP	08 060	St. Hubert, Quebec	45 31 00	73 25 00	27	Apr 1, 1977
119a	CANSAP	09 020	St. John, New Brunswick	45 19 00	65 53 00	109	May 1, 1977
120a	CANSAP	08 020	Sept Isles, Quebec	50 13 00	66 15 00	55	Apr 1, 1977
121a	CANSAP	10 030	Shelburne, Nova Scotia	43 43 00	65 15 00	30	Apr 1, 1975
122a	CANSAP	07 110	Simcoe, Ontario	42 51 00	80 16 00	241	May 1, 1977
123a	CANSAP	12 020	Stephenville, Newfoundland	48 32 00	58 33 00	26	May 1, 1977
124a	CANSAP	03 020	Terrace, British Columbia	54 28 00	128 35 00	217	Apr 1, 1977
125a	CANSAP	06 010	The Pas, Manitoba	53 58 00	101 06 00	273	May 1, 1977
126a	CANSAP	07 000	Trout Lake, Ontario	53 50 00	89 52 00	220	May 1, 1977
127a	CANSAP	10 000	Truro, Nova Scotia	45 22 00	63 16 00	40	May 1, 1977
128a	CANSAP	03 060	Vancouver, British Columbia	49 11 00	123 10 00	2	Jul 1, 1977
129a	CANSAP	07 130	Wawa, Ontario	47 58 00	84 47 00	287	May 1, 1977
130a	CANSAP	02 000	Whitehorse, Yukon Territory	60 43 00	135 04 00	703	Jul 1, 1977
131a	CANSAP	07 150	Windsor, Ontario	42 16 00	82 58 00	190	May 1, 1977
132a	CANSAP	05 020	Wynyard, Saskatchewan	51 46 00	104 12 00	561	Feb 1, 1974
133a	CANSAP	03 050	Revelstoke, British Columbia	50 58 00	118 11 00	443	Sep 1, 1979
134a	CANSAP	04 020	Rocky Mtn House, Alberta	52 23 00	114 55 00	988	May 1, 1977
135a	CANSAP	07 023	ELA, Ontario	49 40 00	93 43 00	368	Aug 1, 1979
135b	APN	07 024	ELA, Ontario	49 40 00	93 43 00	368	Nov 15, 1978
140a	APN	07 054	Algoma, Ontario	47 06 00	84 06 00	9999	Sep 29, 1978
141a	APN	07 056	Chalk River, Ontario	46 06 00	77 24 00	122	Nov 11, 1978
142a	APN	07 094	Long Point, Ontario	42 60 00	80 50 00	175	Nov 6, 1978
143a	APN	07 100	Longwoods, Ontario	42 53 00	81 29 00	239	Dec 1, 1982
143b	APIOS-D	1011	Longwoods, Ontario	42 53 02	81 28 50	239	Jul 14, 1980
144a	APN	08 034	Montmorency, Quebec	47 19 00	71 09 00	640	Dec 4, 1980
145a	APN	12 030	Baie d'Espoir, Newfoundland	47 59 00	55 48 00	23	Nov 24, 1981
149a	EPRI-SURE	01	Montague, Massachusetts	42 32 00	72 32 08	73	Aug 1, 1978
149b	EPRI-SURE	01 smplr 2	Montague-2, Massachusetts	42 32 00	72 32 08	73	Aug 1, 1978
150a	EPRI-SURE	01	Turners Falls, Massachusetts	42 35 50	72 32 55	98	Aug 1, 1980
151a	EPRI-SURE	02	Scranton, Pennsylvania	41 34 30	75 59 40	335	Aug 1, 1978
151b	EPRI-SURE	02 smplr 2	Scranton-2, Pennsylvania	41 34 30	75 59 40	335	Aug 1, 1978
152a	EPRI-SURE	03	Indian River, Delaware	38 34 50	75 14 45	6	Aug 1, 1978
152b	EPRI-SURE	03 smplr 2	Indian River-2, Delaware	38 34 50	75 14 45	6	Aug 1, 1978
153a	EPRI-SURE	04	Zanesville, Ohio	39 59 02	82 01 05	250	Aug 1, 1978
153b	EPRI-SURE	04 smplr 2	Zanesville-2, Ohio	39 59 02	82 01 05	250	Aug 1, 1978
154a	EPRI-SURE	05	Rockport, Indiana	37 52 50	87 07 47	131	Aug 1, 1978

ADS sites, sorted by ADS identification

ADS SITE IDENT	NET WORK	NET SITE IDENT	SITE NAME	LATITUDE			LONGITUDE			ELEVATION (meters)	FIRST ACTIVE DATE
				d	m	s	d	m	s		
154b	EPRI-SURE	05 smplr 2	Rockport-2, Indiana	37	52	50	87	07	47	131	Aug 1, 1978
155a	EPRI-SURE	06	Giles County, Tennessee	35	17	05	86	54	11	244	Aug 1, 1978
155b	EPRI-SURE	06 smplr 2	Giles County-2, Tennessee	35	17	05	86	54	11	244	Aug 1, 1978
156a	EPRI-SURE	07	Fort Wayne, Indiana	41	02	39	85	19	08	244	Aug 1, 1978
156b	EPRI-SURE	07 smplr 2	Fort Wayne-2, Indiana	41	02	39	85	19	08	244	Aug 1, 1978
157a	NADP	058850	Yosemite, California	37	47	49	119	51	30	1408	Dec 8, 1981
158a	EPRI-SURE	09	Lewisburg, West Virginia	37	50	50	80	25	00	701	Aug 1, 1978
158b	EPRI-SURE	09 smplr 2	Lewisburg-2, West Virginia	37	50	50	80	25	00	701	Aug 1, 1978
159a	NADP	058500	Channel Islands, California	34	00	57	119	21	43	49	Jul 22, 1980
160a	NADP	060060	Alamosa, Colorado	37	26	36	105	51	55	2298	Apr 22, 1980
161a	NADP	144740	Salem, Illinois	38	38	36	88	58	01	173	Apr 15, 1980
162a	NADP	200010	Acadia < 11/81, Maine	44	24	30	68	14	42	37	Nov 18, 1980
163a	NADP	200045	Caribou, Maine	46	52	08	68	00	55	191	Apr 14, 1980
163b	CANSAP	13 000	Caribou, Maine	46	52	08	68	00	55	191	Apr 1, 1980
164a	NADP	200277	Bridgton, Maine	44	06	27	70	43	44	222	Sep 30, 1980
165a	NADP	232240	Houghton, Michigan	47	13	33	88	37	50	193	Oct 26, 1980
166a	NADP	241840	Fernberg, Minnesota	47	56	45	91	29	43	524	Nov 18, 1980
167a	NADP	312980	Princeton, New Jersey	40	18	54	74	51	17	72	Aug 6, 1980
168a	NADP	332020	Huntington, New York	43	58	19	74	13	25	500	Oct 31, 1978
169a	NADP	343310	R Triangle Park, North Carolina	35	53	47	78	51	38	94	Apr 15, 1980
170a	NADP	380840	Lost Creek, Oregon	42	40	04	122	40	59	475	Oct 21, 1980
171a	NADP	440040	Walker Branch, Tennessee	35	57	41	84	17	14	341	Mar 11, 1980
171b	MAP3s/PCN	9	Oak Ridge, Tennessee	35	57	41	84	17	14	341	Jan 6, 1981
172a	NADP	530190	American Samoa, American Samoa	14	15	08	170	33	48	73	May 20, 1980
173a	NADP	061560	Sand Spring, Colorado	40	30	27	107	42	07	1998	Mar 20, 1979
174a	NADP	341180	R Triangle Inst, North Carolina	35	54	09	78	52	12	99	Oct 14, 1980
175a	NADP	381780	Pendleton, Oregon	45	41	23	118	50	16	542	Apr 15, 1980
176a	APIOS-C	1041	Colchester, Ontario	41	59	15	82	55	41	183	Sep 2, 1980
177a	APIOS-C	1051	Merlin, Ontario	42	14	47	82	13	30	191	Sep 2, 1980
178a	APIOS-C	1061	Port Stanley, Ontario	42	40	22	81	09	55	213	Sep 2, 1980
179a	APIOS-C	1071	Wilkesport, Ontario	42	42	11	82	21	13	183	Sep 3, 1980
180a	APIOS-C	1081	Alvinston, Ontario	42	49	36	81	50	04	221	Sep 5, 1980
181a	APIOS-C	1091	Shallow Lake, Ontario	44	34	54	81	05	24	229	Sep 30, 1980
182a	APIOS-C	1101	Palmerson, Ontario	43	48	19	80	54	12	389	Sep 2, 1980
183a	APIOS-C	1191	Huron Park, Ontario	43	17	28	81	30	03	250	Oct 2, 1981
184a	APIOS-C	2021	Waterloo, Ontario	43	28	39	80	35	09	343	Sep 1, 1980
186a	APIOS-C	3051	Milton, Ontario	43	31	05	79	55	54	221	Sep 2, 1980
187a	APIOS-C	3061	Uxbridge, Ontario	44	12	46	79	12	38	244	Sep 2, 1980
188a	APIOS-C	3071	Wilberforce, Ontario	45	00	54	78	12	58	396	Sep 2, 1980
189a	APIOS-C	3081	Campbellford, Ontario	44	17	28	77	47	33	175	Sep 4, 1980
190a	APIOS-C	3101	Coldwater, Ontario	44	37	31	79	32	08	280	Aug 31, 1981
191a	APIOS-C	4051	Kaladar, Ontario	44	41	31	77	09	18	244	Sep 2, 1980
192a	APIOS-C	4061	Smith's Falls, Ontario	44	56	41	75	57	48	122	Sep 3, 1980
193a	APIOS-C	4071	Dalhousie Mills, Ontario	45	19	00	74	28	13	69	Sep 3, 1980
194a	APIOS-C	4081	Golden Lake, Ontario	45	36	48	77	12	03	160	Sep 2, 1980
195a	APIOS-C	5011	McKellar, Ontario	45	30	57	79	55	19	244	Aug 25, 1980
196a	APIOS-C	5021	Killarney, Ontario	45	59	26	81	29	18	183	May 28, 1980
197a	APIOS-C	5031	Mattawa, Ontario	46	16	45	78	49	19	198	Aug 22, 1980
198a	APIOS-C	5041	Bear Island, Ontario	46	58	22	80	04	40	305	May 29, 1980
199a	APIOS-C	5051	Ramsey, Ontario	47	26	33	82	20	14	427	May 29, 1980
200a	APIOS-C	5061	Gowganda, Ontario	47	39	04	80	46	32	343	Jul 3, 1980
201a	APIOS-C	5071	Moonbeam, Ontario	49	19	16	82	08	46	244	Sep 2, 1980
202a	APIOS-C	5081	Attawapiskat, Ontario	52	56	00	82	24	00	9	Sep 2, 1980
203a	APIOS-C	5091	Whitney, Ontario	45	32	21	78	15	35	412	Sep 2, 1980

ADS sites, sorted by ADS identification

ADS SITE IDENT	NET WORK	NET SITE IDENT	SITE NAME	LATITUDE d m s	LONGITUDE d m s	ELEVATION (meters)	FIRST ACTIVE DATE
204a	APIOS-C	6011	Dorion, Ontario	48 50 33	88 36 45	244	Sep 2, 1980
205a	APIOS-C	6021	Nakina, Ontario	50 10 38	86 42 40	320	Sep 2, 1980
206a	APIOS-C	6031	Ear Falls, Ontario	50 38 31	93 13 13	350	Sep 2, 1980
207a	APIOS-C	6041	Pickle Lake, Ontario	51 27 41	90 12 04	360	Jul 26, 1980
208a	APIOS-C	6061	Lac La Croix, Ontario	48 21 14	92 12 32	368	Sep 30, 1980
208b	APIOS-D	6061	Lac La Croix, Ontario	48 21 14	92 12 32	368	Sep 23, 1981
209a	APIOS-C	6071	Quetico Centre, Ontario	48 44 24	91 12 08	420	Nov 30, 1981
210a	APIOS-C	6091	Experimental Lake, Ontario	49 39 22	93 43 28	123	Oct 6, 1981
211a	APIOS-C	6101	Winisk, Ontario	55 12 00	85 08 00	9	Sep 30, 1980
221a	APIOS-D	1021	Melborne, Ontario	42 47 15	81 33 23	213	Nov 3, 1980
222a	APIOS-D	1031	North Easthope, Ontario	43 24 21	80 53 35	375	Nov 1, 1980
223a	APIOS-D	2011	Wellesly, Ontario	43 28 13	80 45 35	344	Jan 27, 1981
224a	APIOS-D	3021	Nithgrove, Ontario	45 12 01	79 04 14	335	Jan 26, 1981
225a	APIOS-D	3031	Balsam Lake, Ontario	44 37 35	78 51 22	259	Nov 21, 1980
226a	APIOS-D	3041	Raven Lake, Ontario	44 36 40	78 54 43	274	Feb 1, 1981
227a	APIOS-D	4011	Charleston Lake, Ontario	44 29 54	76 02 30	92	Jan 25, 1981
228a	APIOS-D	4021	Railton, Ontario	44 22 34	76 35 33	137	Jul 14, 1980
229a	APIOS-D	4031	Graham Lake, Ontario	44 35 22	75 51 44	130	Oct 25, 1980
230a	APIOS-D	4041	Whitman Creek, Ontario	44 29 07	76 49 19	137	Oct 24, 1980
231a	APIOS-D	6051	Fernberg, Ontario	47 56 51	91 29 26	506	Nov 5, 1981
233a	APIOS-D	6071	Quetico Centre, Ontario	48 24 44	91 12 08	420	Oct 16, 1981
234a	APIOS-D	6081	Forbes Twsp., Ontario	48 34 58	89 38 56	324	Sep 23, 1981
235a	UAPSP	15	Selma, Alabama	32 28 25	87 05 03	42	Oct 17, 1981
235b	UAPSP	15 smplr 2	Selma-2, Alabama	32 28 25	87 05 03	42	Oct 17, 1981
236a	UAPSP	23	Yampa, Colorado	40 10 00	106 55 00	2390	Aug 12, 1982
237a	UAPSP	14	Uvalda, Georgia	32 03 18	82 28 25	64	Oct 13, 1981
238a	UAPSP	18	Lancaster, Kansas	39 34 10	95 18 17	346	Nov 5, 1981
239a	UAPSP	11	Morehead, Kentucky	38 08 10	83 27 17	235	Oct 24, 1981
240a	UAPSP	13	Winterport, Maine	44 37 05	68 58 30	67	Oct 21, 1981
241a	UAPSP	10	Gaylord, Michigan	44 56 58	84 38 30	473	Nov 7, 1981
242a	UAPSP	16	Clinton, Mississippi	32 21 06	90 17 15	76	Oct 20, 1981
243a	UAPSP	21	Big Moose, New York	43 49 03	74 54 08	603	Oct 26, 1981
244a	UAPSP	22	McArthur, Ohio	39 14 06	82 28 41	224	Oct 1, 1981
245a	UAPSP	19	Brookings, South Dakota	44 19 54	96 49 45	499	Oct 30, 1981
245b	UAPSP	19 smplr 2	Brookings-2, South Dakota	44 19 54	96 49 45	499	Oct 30, 1981
246a	UAPSP	12	Alamo, Tennessee	35 47 32	89 08 03	112	Oct 23, 1981
247a	UAPSP	17	Marshall, Texas	32 39 58	94 25 06	81	Oct 25, 1981
248a	UAPSP	20	Underhill Center, Vermont	44 31 42	72 52 08	442	Oct 1, 1981
249a	NADP	470100	Bennington, Vermont	42 52 34	73 09 48	305	Apr 28, 1981
250a	NADP	482890	Big Meadows, Virginia	38 30 51	78 25 45	1047	May 12, 1981
251a	NADP	220155	NACL, Massachusetts	41 58 23	70 01 12	34	Dec 15, 1981
252a	NADP	260380	Ashland, Missouri	38 45 13	92 11 55	239	Oct 20, 1981
253a	NADP	260560	University Forest, Missouri	36 54 39	90 19 06	154	Oct 27, 1981
254a	NADP	453800	Forest Seed Ctr, Texas	31 33 38	94 51 39	84	Aug 18, 1981
255a	NADP	520820	Newcastle, Wyoming	43 52 24	104 11 32	1466	Aug 11, 1981
256a	NADP	061911	Loch Vale, Colorado	40 21 51	105 34 55	2490	Oct 18, 1983
257a	NADP	200011	Acadia > 11/81, Maine	44 22 27	68 15 39	122	Nov 10, 1981
258a	NADP	232241	Chassell, Michigan	47 06 03	88 33 10	279	Feb 15, 1983
259a	EPA-IV		Tallassee, Alabama				Mar 23, 1982
260a	EPA-IV		Grayson Lake, Kentucky				Apr 6, 1982
261a	EPA-IV		Hiasassee, Georgia				Apr 27, 1982
262a	EPA-IV		Summerville, Georgia				Jun 1, 1982
263a	EPA-IV		University, Mississippi				May 11, 1982
264a	EPA-IV		Center Hill, Tennessee				Aug 20, 1982

ADS SITE IDENT	NET WORK	NET SITE IDENT	SITE NAME	LATITUDE d m s	LONGITUDE d m s	ELEVATION (meters)	FIRST ACTIVE DATE
265a	EPA-IV		Mammoth Cave, Kentucky				Oct 12, 1982
266a	EPA-IV		Long Creek, South Carolina				Nov 9, 1982
267a	EPA-IV		Delta, South Carolina				Dec 21, 1982
268a	NADP	040260	Warren 2WSW, Arizona	33 36 15	92 06 02	78	May 25, 1982
269a	NADP	041620	Buffalo River, Arkansas	36 05 20	92 32 58	265	Jan 13, 1982
270a	NADP	054200	Tanbark Flat, California	34 12 27	117 45 39	853	Jan 12, 1982
271a	NADP	130480	Headquarters, Idaho	47 37 40	115 49 10	969	Jul 20, 1982
272a	NADP	154100	Purdue U Ag Farm, Indiana	40 28 17	85 59 18	215	Jul 13, 1982
273a	NADP	173120	Konza Prairie, Kansas	39 06 08	96 36 33	344	Aug 17, 1982
274a	NADP	190620	N La Hill Farm, Louisiana	32 45 04	93 03 02	61	Nov 16, 1982
275a	NADP	191260	Iberia, Louisiana	29 55 47	91 42 54	6	Nov 16, 1982
276a	NADP	220815	Cadwell, Massachusetts	42 21 40	72 23 27	283	Mar 5, 1982
277a	NADP	221325	East, Massachusetts	42 23 02	71 12 53	20	Feb 2, 1982
278a	NADP	271340	Give Out Morgan, Montana	48 28 42	105 11 39	817	Sep 14, 1982
279a	NADP	320720	Bandelier, New Mexico	35 46 54	106 16 03	1998	Jun 22, 1982
280a	NADP	320980	CUBA, New Mexico	36 02 27	106 58 17	2124	Feb 3, 1982
281a	NADP	380260	Bull Run, Oregon	45 27 00	122 08 50	267	Jul 13, 1982
282a	NADP	452180	Longview, Texas	32 22 53	94 42 49	107	Jun 29, 1982
283a	NADP	512800	Lake Dubay, Wisconsin	44 39 53	89 39 08	2113	Jun 29, 1982
284a	NADP	520680	Pinedale, Wyoming	42 55 44	109 47 12	2388	Jan 26, 1982
285a	NADP	312981	Washington Xing, New Jersey	40 18 54	74 51 17	72	Apr 8, 1981
286a	CANSAP	03 080	Puntzi Mountain, British Columbia	52 07 00	124 05 00	911	Apr 1, 1974
287a	CANSAP	07 140	Armstrong, Ontario	50 17 00	88 54 00	323	Feb 25, 1974
288a	GLAD	142360010	Evanston, Illinois	42 03 36	87 40 25	183	Jul 14, 1981
289a	GLAD	141220043	Jardine Plant, Illinois	41 53 41	87 36 23	194	Jun 2, 1981
290a	GLAD	141220034	South Water Plant, Illinois	41 45 25	87 32 45	187	Jun 2, 1981
291a	GLAD	230420002	Bay City, Michigan	43 39 30	83 53 45	187	Mar 24, 1981
292a	GLAD	230860001	Beaver Island, Michigan	45 44 30	85 30 30	183	Sep 22, 1981
293a	GLAD	230460004	Benton Harbor, Michigan	42 07 00	86 28 30	191	Feb 3, 1981
294a	GLAD	232740001	Cooper Harbor, Michigan	47 28 00	87 52 00	191	Jun 23, 1981
295a	GLAD	232740002	Eagle Harbor, Michigan	47 27 28	88 09 42	188	Jun 14, 1983
296a	GLAD	232940001	Empire, Michigan	44 51 16	86 02 08	233	Jun 21, 1983
297a	GLAD	231420008	Escanaba, Michigan	45 44 30	87 03 30	196	Jun 9, 1981
298a	GLAD	230080001	Gramd Marais, Michigan	46 40 00	85 58 00	191	Jul 14, 1981
299a	GLAD	233660002	Mount Clemens, Michigan	42 34 00	82 50 40	176	Apr 20, 1982
300a	GLAD	233660002	Mount Clemens, Michigan	42 37 02	82 53 25	187	Mar 24, 1981
301a	GLAD	233760007	Muskegon, Michigan	43 08 40	86 16 20	190	Mar 24, 1981
302a	GLAD	234060002	Ontonagon, Michigan	46 49 20	89 38 00	194	Jul 7, 1981
303a	GLAD	232340002	Port Austin, Michigan	44 02 50	82 59 40	185	Apr 7, 1981
304a	GLAD	234800001	Port Sanilac, Michigan	43 26 20	82 32 32	190	Mar 17, 1981
305a	GLAD	234110002	Tawas Point, Michigan	44 16 00	83 26 30	179	May 5, 1981
306a	GLAD	241040029	Duluth, Minnesota	46 46 07	92 05 15	198	Jul 21, 1981
307a	GLAD	241840016	Gooseberry Falls, Minnesota	46 24 40	91 28 48	206	Sep 22, 1981
308a	GLAD	240900001	Gull Lake, Minnesota	46 24 40	94 21 15	383	Jan 19, 1982
309a	GLAD	240800009	Hovland, Minnesota	47 50 50	89 57 45	224	Jul 21, 1981
310a	GLAD	333340099	Cape Vincent, New York	44 05 30	76 20 30	80	Jan 19, 1982
311a	GLAD	331600099	Dunkirk, New York	42 30 13	79 19 26	182	Jan 19, 1982
312a	GLAD	330860099	Fair Haven, New York	43 19 08	76 42 11	74	Jan 4, 1982
313a	GLAD	332000099	Grand Island, New York	43 03 30	78 58 00	173	Jan 19, 1982
314a	GLAD	334720099	Olcott, New York	43 20 27	78 41 35	84	Jan 19, 1982
315a	GLAD	335760099	Rochester, New York	43 13 48	77 34 45	81	Jan 19, 1982
316a	GLAD	360200001	Ashtabula, Ohio	41 54 30	80 46 30	179	Jan 26, 1982
317a	GLAD	362100001	Fairport Harbor, Ohio	41 45 17	81 16 25	203	Jan 27, 1982
318a	GLAD	363620014	Lorain, Ohio	41 28 20	82 08 30	192	Feb 17, 1981

ADS sites, sorted by ADS identification

ADS SITE IDENT	NET WORK	NET SITE IDENT	SITE NAME	LATITUDE d m s	LONGITUDE d m s	ELEVATION (meters)	FIRST ACTIVE DATE
319a	GLAD	365260001	Put-in-Bay, Ohio	41 39 29	82 49 40	177	Feb 17, 1981
320a	GLAD	365200007	Toledo, Ohio	41 41 30	83 24 32	177	Jan 27, 1981
321a	GLAD	393060099	Erie, Pennsylvania	42 07 48	80 06 03	183	Jan 18, 1982
322a	GLAD	510180001	Cornucopia, Wisconsin	46 51 44	91 08 13	195	Feb 17, 1981
323a	GLAD	510360001	Green Bay, Wisconsin	44 31 47	87 55 11	201	Mar 31, 1981
324a	GLAD	513600001	Manitowoc, Wisconsin	44 03 56	87 39 23	189	Jul 7, 1981
325a	GLAD	512200035	Milwaukee, Wisconsin	43 04 31	87 53 02	205	Mar 17, 1981

TABLE C.2

ADS sites, sorted by STATE or PROVINCE

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE			LONGITUDE			ELEV	ADS rev num	REV START	REV END	OPERATING HISTORY
		d	m	s	d	m	s	m				
Alabama (1)												
UAPSP (08)												
Selma (15)	235a	32	28	25	87	05	03	42	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981. Co-located sampler at this site, see 235b.
									01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82 See co-located sampler 235b.
									02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol See co-located sampler 235b.
Selma-2 (15 smplr 2)	235b	32	28	25	87	05	03	42	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981 See co-located sampler 235a.
									01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82 See co-located sampler 235a.
									02	1/83	1/83	Discontinued analysis of NITRITE on 1/1/83. Discontinued operation of co-located sampler on 1/21/83. This ADS ident TERMINATED.
EPA-IV (13)												
Tallassee	259a								00	3/82	9/83	Samples analyzed by RTI
									01	10/83		Samples analyzed by Global Geochem after 10/1/83
Alaska (2)												
NADP (01)												
Mt. Mckinley Park (020390)	001a	63	43	27	148	57	55	649	00	6/80		
Arizona (4)												
NADP (01)												
Grand Canyon (030370)	068a	36	04	18	112	09	11	2152	00	8/81		
Oliver Knoll (030360)	054a	33	04	17	109	51	53	1173	00	8/81		
Organ Pipe Mon. (030620)	003a	31	57	02	112	48	00	506	00	4/80		
Tombstone (030180)	002a	31	42	30	110	03	24	1398	00	3/79		
Warren 2WSW (040260)	268a	33	36	15	92	06	02	78	00	5/82		
Arkansas (5)												
NADP (01)												
Buffalo River (041620)	269a	36	05	20	92	32	58	265	00	1/82		
Fayetteville (042700)	004a	36	06	02	94	10	24	391	00	5/80		
California (6)												
NADP (01)												
Bishop (053460)	006a	37	22	15	118	21	59	1252	00	4/80		This site is part of the WMO network.
Channel Islands (058500)	159a	34	00	57	119	21	43	49	00	7/80		
Davis (058840)	009a	38	32	07	121	46	30	18	00	10/78		
Hopland (Ukiah) (054540)	007a	39	00	17	123	05	05	253	00	10/79		
Sequoia Nat. Park (057550)	008a	36	34	09	118	46	40	1856	00	7/80		

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Tanbark Flat (054200)	270a	34 12 27	117 45 39	853	00	1/82		
Yosemite (058850)	157a	37 47 49	119 51 30	1408	00	12/81		
Colorado (8)								
NADP (01)								
Alamosa (060060)	160a	37 26 36	105 51 55	2298	00	4/80		
Loch Vale (061911)	256a	40 21 51	105 34 55	2490	00	10/83		The sampler was relocated from HQ parking lo to this meadow on 18-Oct-83. Previous samples from Rocky Mountain Park are stored under ADS ident 010a00
Manitou (062120)	011a	39 06 04	105 05 31	2362	00	10/78		
Mesa Verde (061530)	029a	37 11 56	108 29 26	2172	00	4/81		
Pawnee (062220)	012a	40 48 23	104 45 15	1641	00	5/79		On 22-Apr-80 the collector was moved closer to the gage. No change was made in the ADS site number.
Rocky Mt. Nat Park (061910)	010a	40 21 52	105 33 37	2369	00	5/80		Sampler and raingage were moved from HQ parking lot to a meadow about 1.8km west and 200 m higher on 18-Oct-83. This ADS ident was TERMINATED at that time. See ADS iden 256a00 for samples collected after 18-Oct-83
Sand Spring (061560)	173a	40 30 27	107 42 07	1998	00	3/79		
UAPSP (08)								
Yampa (23)	236a	40 10 00	106 55 00	2390	00	8/82	12/82	Started operation in UAPSP in middle of firs year.
					01	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol.
MAP3s/PCN (06)								
Lewes (7)	013a	38 46 00	75 00 00	0	00	2/78	11/80	This MAP3S site started operation with the Battelle Northwest collector; surface area = 490 sq cm.
					01	11/80		On 10-Nov-80 the collector was changed to th Aerochem Metrics model 301-A2 with a surface area of 640 sq cm.
EPRI-SURE (10)								
Indian River (03)	152a	38 34 50	75 14 45	6	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NO USE DATA
					01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 152b.
					02	1/80	6/80	Starting 1/1/80 only one sampler in operatio at this EPRI/SURE siteSTATION TERMINATED Jun 30, 1980
Indian River-2 (03 smplr 2)	152b	38 34 50	75 14 45	6	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NO USE DATA
					01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 152a. The second sampler was removed after one year, this ADS number DISCONTINUED.

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE			LONGITUDE			ELEV	ADS rev num	REV START	REV END	OPERATING HISTORY
		d	m	s	d	m	s	m				
Florida (12)												
NADP (01)												
Austin-Cary Forest (100020)	014a	29	45	37	82	11	56	46	00	10/78		
Bradford Forest (100360)	015a	29	58	29	82	11	53	44	00	10/78		
Everglades Nat. Pa (101190)	016a	25	23	40	80	41	45	2	00	6/80		
Georgia (13)												
NADP (01)												
Georgia Station (114140)	017a	33	10	40	84	24	22	270	00	10/78		
UAPSP (08)												
Uvalda (14)	237a	32	03	18	82	28	25	64	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
									01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
									02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
EPA-IV (13)												
Hiasassee	261a								00	4/82	9/83	Samples analyzed by RTI
									01	10/83		Samples analyzed by Global Geochem after 10/1/83
Hawaii (15)												
NADP (01)												
Mauna Loa (120080)	018a	19	32	22	155	34	45	3426	00	6/80		
Idaho (16)												
NADP (01)												
Craters of Moon (130340)	019a	43	27	48	113	33	31	1806	00	8/80		
Headquarters (130480)	271a	47	37	40	115	49	10	969	00	7/82		
Illinois (17)												
NADP (01)												
Argonne (141980)	021a	41	42	04	87	59	43	229	00	3/80		On 25-May-80, the collector and raingage(?) were moved less than 1km. No change was made in ADS site number.
Bondville (141160)	020a	40	03	12	88	22	19	212	00	2/79		
Dixon Springs (146340)	023a	37	26	08	88	40	19	161	00	1/79		
NIARC (141800)	024a	41	50	29	88	51	04	265	00	1/81		
Salem (144740)	161a	38	38	36	88	58	01	173	00	4/80		On 30-Oct-81 a Belfort weighing recording raingage was installed 10 ft NW of and to replace 8-inch stick or standard gage. No change made in ADS site number.
Southern Ill U (143580)	022a	37	42	36	89	16	08	146	00	7/79		
MAP3s/PCN (06)												
Illinois (5)	020b	40	03	12	88	22	19	212	00	11/77	2/80	This MAP3S site started operation with the Battelle Northwest collector; surface area = 490 sq cm.
									01	2/80	1/82	On 16-Feb-80 the collector was changed to the HASL model with surface area = 325 sq cm.
									02	1/82		On 5-Jan-82 the collector was changed to the Aerochem Metrics model 301-A2 with surface area = 640 sq cm.

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
GLAD (14)								
Evanston (142360010)	288a	42 03 36	87 40 25	183	00	7/81		
Jardine Plant (141220043)	289a	41 53 41	87 36 23	194	00	6/81		
South Water Plant (141220034)	290a	41 45 25	87 32 45	187	00	6/81		
Indiana (18)								
NADP (01)								
Indiana Dunes (153420)	025a	41 37 57	87 05 16	208	00	7/80	3/81	This NADP site was moved in March 1981. It was on top of a roof. It was moved several meters and placed on the ground.
					01	3/81		This sampler was located on a nearby roof prior to 3/19/81.
Purdue U Ag Farm (154100)	272a	40 28 17	85 59 18	215	00	7/82		
EPRI-SURE (10)								
Fort Wayne (07)	156a	41 02 39	85 19 08	244	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
					01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 156b.
					02	1/80	9/81	Starting 1/1/80 only one sampler in operation at this EPRI/SURE site
					03	10/81	12/81	Transfered operation from EPRI/SURE to UAPSPS and operated under normal UAPSPS protocol in last quarter of 1981.
					04	1/82	12/82	UAPSPS one year effort to analyze NITRITE in 1982, otherwise protocol remained the same.
					05	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
Fort Wayne-2 (07 smplr 2)	156b	41 02 39	85 19 08	244	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
					01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 156a. The second sampler was removed after one year, this ADS number DISCONTINUED.
Rockport (05)	154a	37 52 50	87 07 47	131	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
					01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 154b.
					02	1/80	9/81	Starting 1/1/80 only one sampler in operation at this EPRI/SURE site
					03	10/81	12/81	Transfered operation from EPRI/SURE to UAPSPS and operated under normal UAPSPS protocol in last quarter of 1981.
					04	1/82	12/82	UAPSPS one year effort to analyze NITRITE in 1982, otherwise protocol remained the same.
					05	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
Rockport-2 (05 smplr 2)	154b	37 52 50	87 07 47	131	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
					01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 154a. The second sampler was removed after one year, this ADS number DISCONTINUED.

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Kansas (20)								
NADP (01)								
Konza Prairie (173120)	273a	39 06 08	96 36 33	344	00	8/82		
UAPSP (08)								
Lancaster (18)	238a	39 34 10	95 18 17	346	00	11/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
					01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
					02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
Kentucky (21)								
UAPSP (08)								
Morehead (11)	239a	38 08 10	83 27 17	235	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
					01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
					02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
EPA-IV (13)								
Grayson Lake	260a				00	4/82	9/83	Samples analyzed by RTI
					01	10/83		Samples analyzed by Global Geochem after 10/1/83
Louisiana (22)								
NADP (01)								
Iberia (191260)	275a	29 55 47	91 42 54	6	00	11/82		
N La Hill Farm (190620)	274a	32 45 04	93 03 02	61	00	11/82		
Maine (23)								
NADP (01)								
Acadia < 11/81 (200010)	162a	44 24 30	68 14 42	37	00	11/80	11/81	Collector and raingage moved 2.5 miles SSW and 85 meters higher on 10-Nov-81. This ADS ident TERMINATED; subsequent data stored under ADS ident 257a00.
Acadia > 11/81 (200011)	257a	44 22 27	68 15 39	122	00	11/81		The collector was formerly located at ADS ident 162a00.
Bridgton (200277)	164a	44 06 27	70 43 44	222	00	9/80		
Caribou (200045)	163a	46 52 08	68 00 55	191	00	4/80		See 163b, CANSAP intercomparison.
Greenville Station (200935)	030a	45 29 23	69 39 52	322	00	11/79		On 15-Jul-80 a Belfort weighting and recording raingage was installed; there was no gage on site prior to this date. No change was made to ADS site number.
CANSAP (05)								
Caribou (13 000)	163b	46 52 08	68 00 55	191	00	4/80		Operated as international intercomparison site. This CANSAP sampler is co-located with NADP site 163a - Data not in ADS.

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
UAPSP (08)								
Winterport (13)	240a	44 37 05	68 58 30	67	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
					01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
					02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
Massachusetts (25)								
NADP (01)								
Cadwell (220815)	276a	42 21 40	72 23 27	283	00	3/82		
East (221325)	277a	42 23 02	71 12 53	20	00	2/82		
NACL (220155)	251a	41 58 23	70 01 12	34	00	12/81		
EPRI-SURE (10)								
Montague (01)	149a	42 32 00	72 32 08	73	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
					01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 149b.
					02	1/80	7/80	Starting 1/1/80 only one sampler in operation at this EPRI/SURE site sampler moved to ADS location 150a on 1-Aug-80. Site 149a TERMINATED
Montague-2 (01 smplr 2)	149b	42 32 00	72 32 08	73	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
					01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 149a. The second sampler was removed after one year, this ADS number DISCONTINUED.
Turners Falls (01)	150a	42 35 50	72 32 55	98	00	8/80	9/81	EPRI/SURE site moved from 149a on 1-aug-80
					01	10/81	12/81	Transfered operation from EPRI/SURE to UAPSPS and operated under normal UAPSPS protocol in last quarter of 1981.
					02	1/82	12/82	UAPSPS one year effort to analyze NITRITE in 1982, otherwise protocol remained the same.
					03	1/83		Discontinued NITRITE analysis.
Michigan (26)								
NADP (01)								
Chassell (232241)	258a	47 06 03	88 33 10	279	00	2/83		relocated from 165a00 on 10/15/83
Douglas Lake (230920)	031a	45 33 40	84 40 42	233	00	7/79		
Houghton (232240)	165a	47 13 33	88 37 50	193	00	10/80	2/83	Sampler was moved 8 miles to the SE on 10/15/83. This ADS ident TERMINATED; subsequent data stored as ADS ident 258a00
Isle Royal Park (232570)	026a	47 54 43	89 09 10	209	00	8/80		
Kellogg (232660)	032a	42 24 37	85 23 34	288	00	6/79		
Wellston (235340)	033a	44 13 28	85 49 07	292	00	10/78		on 27-Sep-83 the collector was moved to about 10m from the raingage. No change was made in ADS site number.
CANSAP (05)								
Pellston (13 020)	031b	45 33 40	84 40 42	233	00	7/79	1/80	Sangamo model C.
					01	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d	m	s	LONGITUDE d	m	s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
UAPSP (08)												
Gaylord (10)	241a	44	56	58	84	38	30	473	00	11/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
									01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
									02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
GLAD (14)												
Bay City (230420002)	291a	43	39	30	83	53	45	187	00	3/81		
Beaver Island (230860001)	292a	45	44	30	85	30	30	183	00	9/81		
Benton Harbor (230460004)	293a	42	07	00	86	28	30	191	00	2/81		
Cooper Harbor (232740001)	294a	47	28	00	87	52	00	191	00	6/81	5/83	This GLAD network site TERMINATED on May 17, 1983. Sampler moved to Eagle Harbor (ADS site 295a).
Eagle Harbor (232740002)	295a	47	27	28	88	09	42	188	00	6/83		
Empire (232940001)	296a	44	51	16	86	02	08	233	00	6/83		
Escanaba (231420008)	297a	45	44	30	87	03	30	196	00	6/81		
Gramd Marais (230080001)	298a	46	40	00	85	58	00	191	00	7/81		
Mount Clemens (233660002)	299a	42	34	00	82	50	40	176	00	4/82		
Muskegon (233760007)	301a	43	08	40	86	16	20	190	00	3/81		
Ontonagon (234060002)	302a	46	49	20	89	38	00	194	00	7/81		
Port Austin (232340002)	303a	44	02	50	82	59	40	185	00	4/81		
Port Sanilac (234800001)	304a	43	26	20	82	32	32	190	00	3/81		
Tawas Point (234110002)	305a	44	16	00	83	26	30	179	00	5/81		
Minnesota (27)												
NADP (01)												
Fernberg (241840)	166a	47	56	45	91	29	43	524	00	11/80	3/81	This NADP site operated with collector at ground level within a clearing until March 1981.
									01	3/81	5/81	Collector and raingage(?) moved to rooftop of trailer within existing clearing.
									02	5/81		Collector and raingage returned to ground level about 30m from trailer roof top.
Lamberton (242720)	035a	44	14	14	95	18	02	343	00	1/79		
Marcell (241660)	034a	47	31	52	93	28	07	431	00	7/78		
GLAD (14)												
Duluth (241040029)	306a	46	46	07	92	05	15	198	00	7/81		
Gooseberry Falls (241840016)	307a	46	24	40	91	28	48	206	00	9/81		
Go[illegible] Lake (240900001)	308a	46	24	40	94	21	15	383	00	1/82		
[illegible]and (240800009)	309a	47	50	50	89	57	45	224	00	7/81		
Mississippi (28)												
NADP (01)												
Meridian (251460)	036a	32	20	04	88	44	42	89	00	4/80		
UAPSP (08)												
Clinton (16)	242a	32	21	06	90	17	15	76	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
									01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
									02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol

ADS sites, sorted by STATE or PROVINCE

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d	m	s	LONGITUDE d	m	s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
EPA-IV (13)												
University	263a								00	5/82	9/83	Samples analyzed by RTI
									01	10/83		Samples analyzed by Global Geochem after 10/1/83
Missouri (29)												
NADP (01)												
Ashland (260380)	252a	38	45	13	92	11	55	239	00	10/81		
University Forest (260560)	253a	36	54	39	90	19	06	154	00	10/81		
Montana (30)												
NADP (01)												
Give Out Morgan (271340)	278a	48	28	42	105	11	39	817	00	9/82		
Glacier Nat Park (270570)	037a	48	30	37	113	59	44	968	00	6/80		See 037b, CANSAP intercomparison.
CANSAP (05)												
Glacier Nat Park (13 010)	037b	48	30	37	113	59	44	968	00	6/80		This is an international intercomparison sampler, operated by CANSAP at this NADP site. Data not included in ADS.
Nebraska (31)												
NADP (01)												
Mead (281520)	038a	41	09	11	96	29	34	352	00	7/78		
New Hampshire (33)												
NADP (01)												
Hubbard Brook (300240)	039a	43	56	35	71	42	12	250	00	7/78		
New Jersey (34)												
NADP (01)												
Princeton (312980)	167a	40	18	54	74	51	17	72	00	8/80	7/81	On Juy 7, 1981 this site was TERMINATED. Collector was moved about 25 miles SW to Washington Crossing. See ADS-IDENT 285a00 This site is part of the WMO network.
Washington Xing (312981)	285a	40	18	54	74	51	17	72	00	4/81		This NADP collector was formerly located in the town of Princeton. See ADS-IDENT 167a00. This site is part of the WMO network.
New Mexico (35)												
NADP (01)												
Bandelier (320720)	279a	35	46	54	106	16	03	1998	00	6/82		
CUBA (320980)	280a	36	02	27	106	58	17	2124	00	2/82		
New York (36)												
NADP (01)												
Aurora (330860)	040a	42	44	02	76	39	35	249	00	4/79		
Bennett Bridge (335240)	046a	43	31	34	75	56	50	245	00	6/80		
Chautauqua (331000)	041a	42	17	58	79	23	47	488	00	6/80		
Huntington (332020)	168a	43	58	19	74	13	25	500	00	10/78		
Jasper (336500)	047a	42	06	22	77	32	08	634	00	2/80		
Knobit (331220)	042a	42	22	41	73	30	10	406	00	1/80		
Stilwell Lake (335140)	045a	41	21	00	74	02	22	186	00	6/79		

ADS sites, sorted by STATE or PROVINCE

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
MAP3s/PCN (06)								
Brookhaven (6)	048a	40 52 00	72 53 00	25	00	2/78	2/81	Started operation using Battelle Northwest sampler with surface area = 490 sq cm.
					01	2/81		On 24-Feb-81 the sampler was changed to an Aerochem Metrics model 301-A2 with surface area = 640 sq cm.
Ithaca (2)	044a	42 24 03	76 39 12	509	00	10/76	8/77	This MAP3S site started operation with the Battelle Northwest collector; surface area = 490 sq cm.
					01	8/77	9/77	Analysis method changed. NH4 was colorimetry now Ion Chromatography. NA and K were Flame Emission Spectrography - now Ion Chromatography.
					02	9/77	11/79	Analysis method changed. CA and MG were Flame Emission Spectrography - now Flame Atomic Absorption. SO4 was colorimetry - now Colorimetry with field fixation.
					03	11/79		Collector changed to HASL model with surface area = 640 sq cm.
Whiteface (1)	043a	44 23 26	73 51 34	610	00	10/76	8/77	This MAP3s/PCN site started operation with the Battelle Northwest collector; surface area = 490 sq sm.
					01	8/77	9/77	Analysis method changed in August 1977. NH4 changed from colorimetry to Ion Chromatography. NA and K changed from Flame Emission Spectrometry to Ion Chromatography.
					02	9/77	12/79	Analysis method changed in mid September 1977. CA and MG changed from Flame Emission Spectrometry to Flame Atomic Absorbtion on 9/14/77. SO4 (S-IV) changed from colorimetry to colimetry with field fixation on 9/6/77.
					03	12/79		Collection instrument changed to HASL with surface area = 640 sq cm in December 1979.
UAPSP (08)								
Big Moose (21)	243a	43 49 03	74 54 08	603	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
					01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
					02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
GLAD (14)								
Cape Vincent (333340099)	310a	44 05 30	76 20 30	80	00	1/82		
Dunkirk (331600099)	311a	42 30 13	79 19 26	182	00	1/82		
Fair Haven (330860099)	312a	43 19 08	76 42 11	74	00	1/82		
Grand Island (332000099)	313a	43 03 30	78 58 00	173	00	1/82		
Olcott (334720099)	314a	43 20 27	78 41 35	84	00	1/82		
Rochester (335760099)	315a	43 13 48	77 34 45	81	00	1/82		
North Carolina (37)								
NADP (01)								
Clinton Station (343560)	052a	35 01 26	78 16 45	47	00	10/78		
Coweeta (342500)	050a	35 03 38	83 25 50	686	00	7/78		

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d	m	s	LONGITUDE d	m	s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Finley (A) (344160)	053a	35	43	43	78	40	52	119	00	10/78		See co-located 053b.
Finley (B) (344161)	053b	35	43	43	78	40	52	119	00	10/78		See co-located 053a.
Lewiston (340320)	049a	36	07	40	77	10	30	26	00	10/78		
Piedmont Station (343460)	051a	35	41	48	80	37	22	221	00	10/78		
R Triangle Inst (341180)	174a	35	54	09	78	52	12	99	00	10/80		
R Triangle Park (343310)	169a	35	53	47	78	51	38	94	00	4/80		
EPRI-SURE (10)												
Raleigh (08)	053c	35	43	43	78	40	48	128	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
									01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 053d.
									02	1/80	9/81	Starting 1/1/80 only one sampler in operation at this EPRI/SURE site
									03	10/81	12/82	Transfered operation from EPRI/SURE to UAPSPS and operated under normal UAPSPS protocol in last quarter of 1981.
									04	1/82	12/82	UAPSPS one year effort to analyze NITRITE in 1982, otherwise protocol remained the same.
									05	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
Raleigh-2 (08 smplr 2)	053d	35	43	43	78	40	48	128	00	8/78	12/79	Start up phase for this EPRI/SURE site DO NOT USE DATA
									01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 053c. The second sampler was removed after one year, this ADS number DISCONTINUED.
North Dakota (38)												
NADP (01)												
Teddy Roosevelt NP (350700)	062a	47	36	09	103	15	54	618	00	5/81		
Ohio (39)												
NADP (01)												
Caldwell (364900)	056a	39	47	34	81	31	52	276	00	9/78		
Delaware (361760)	055a	40	21	19	83	03	58	285	00	10/78		
Wooster (367160)	058a	40	46	48	81	55	31	315	00	9/78		
MAP3S/PCN (06)												
Oxford (8)	057a	39	31	51	84	43	25	284	00	9/80	11/80	Started operation using Battelle Northwest sampler with surface area = 490 sq cm.
									01	11/80		On 24-NOv-80 the sampler was changed to the Aerochem Metrics model 301-A2 with surface area = 640 sq cm.
UAPSP (08)												
McArthur (22)	244a	39	14	06	82	28	41	224	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
									01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
									02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d	m	s	LONGITUDE d	m	s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
EPRI-SURE (10)												
Zanesville (04)	153a	39	59	02	82	01	05	250	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
									01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 153b.
									02	1/80	9/81	Starting 1/1/80 only one sampler in operation at this EPRI/SURE site
									03	10/81	12/81	Transfered operation from EPRI/SURE to UAPSPS and operated under normal UAPSPS protocol in last quarter of 1981.
									04	1/82	12/82	UAPSPS one year effort to analyze NITRITE in 1982, otherwise protocol remained the same.
									05	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
Zanesville-2 (04 smplr 2)	153b	39	59	02	82	01	05	250	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
									01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 153a. The second sampler was removed after one year, this ADS number DISCONTINUED.
GLAD (14)												
Ashtabula (360200001)	316a	41	54	30	80	46	30	179	00	1/82		
Fairport Harbor (362100001)	317a	41	45	17	81	16	25	203	00	1/82		
Lorain (363620014)	318a	41	28	20	82	08	30	192	00	2/81		
Put-in-Bay (365260001)	319a	41	39	29	82	49	40	177	00	2/81		
Toledo (365200007)	320a	41	41	30	83	24	32	177	00	1/81		
Oregon (41)												
NADP (01)												
Alsea (380200)	059a	44	23	13	123	37	22	84	00	12/79		
Bull Run (380260)	281a	45	27	00	122	08	50	267	00	7/82		
H.J. Andrews (381020)	061a	44	13	23	122	14	32	472	00	5/80		
Lost Creek (380840)	170a	42	40	04	122	40	59	475	00	10/80		
Pendleton (381780)	175a	45	41	23	118	50	16	542	00	4/80		
Schmidt Farm (380201)	060a	44	37	35	123	12	50	69	00	12/79		
Vines Hill (381120)	027a	43	53	57	117	25	37	904	00	7/80		
Pennsylvania (42)												
NADP (01)												
Kane (392940)	063a	41	35	52	78	46	04	618	00	7/78		
Leading Ridge (394200)	064a	40	39	32	77	56	10	282	00	4/79		

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
MAP3s/PCN (06)								
Penn State (3)	065a	40 47 18	77 56 47	393	00	9/76	8/77	Started operation using Battelle Northwest sampler with surface area = 490 sq cm.
					01	8/77	9/77	Analysis method changed. NH4 was colorimetry - now Ion Chromatography. NA and K were Flame Emission Spectrography - now Ion Chromatography.
					03	9/77	12/79	Analysis method changed. CA and MG were Flame Emission Spectrography - now Flame Atomic Absorption. SO4 was colorimetry - now Colorimetry with field fixation.
					04	12/79	2/81	Collection instrument changed. Was BNW - now HASL with surface area = 640 sq cm.
					05	3/81		Collection instrument changed. Was HASL - now Aerochem Metrics model 301-A2 with surface area = 640 sq cm.
EPRI-SURE (10)								
Scranton (02)	151a	41 34 30	75 59 40	335	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
					01	1/79	12/79	operation as a co-located site see 151b.
					02	1/80	12/80	continued operation in EPRI/SURE network with only one sampler in use.
					03	1/81	9/81	Station NOT IN USE
					04	10/81	12/81	started operation as UAPSP site with 13 ?? components in analysis protocol
					05	1/82	12/82	UAPSP one year effort to analyze NITRITE in 1982. Otherwise protocol remained same.
					06	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
Scranton-2 (02 smplr 2)	151b	41 34 30	75 59 40	335	00	8/78	12/79	EPRI/SURE start up phase DO NOT USE DATA
					01	1/79	12/79	one year operation with two samplers at this site, see 151a.
GLAD (14)								
Erie (393060099)	321a	42 07 48	80 06 03	183	00	1/82		
South Carolina (45)								
NADP (01)								
Clemson (421880)	066a	34 40 28	82 50 09	221	00	3/79		
EPA-IV (13)								
Delta					00	12/82	9/83	Samples analyzed by RTI
					01	10/83		Samples analyzed by Global Geochem after 10/1/83
South Dakota (46)								
NADP (01)								
Huron (430060)	067a	44 23 02	98 13 14	390	00	4/80		

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
UAPSP (08)								
Brookings (19)	245a	44 19 54	96 49 45	499	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
					01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
					02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
Brookings-2 (19 smplr 2)	245b	44 19 54	96 49 45	499	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
					01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
					02	1/83	1/83	Discontinued analysis of NITRITE on 1/1/83. Discontinued operation of co-located sampler on 1/10/83. This ADS ident TERMINATED.
Tennessee (47)								
NADP (01)								
Elkmont (441190)	028a	35 39 52	83 35 25	640	00	8/80		
Walker Branch (440040)	171a	35 57 41	84 17 14	341	00	3/80		
MAP3s/PCN (06)								
Oak Ridge (9)	171b	35 57 41	84 17 14	341	00	1/81		This MAP2S site started operation with Aerochem Metrics model 301-A2 sampler which has sruface area = 640 sq cm.
UAPSP (08)								
Alamo (12)	246a	35 47 32	89 08 03	112	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
					01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
					02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
EPRI-SURE (10)								
Giles County (06)	155a	35 17 05	86 54 11	244	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
					01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 155b.
					02	1/80	6/80	Starting 1/1/80 only one sampler in operation at this EPRI/SURE site STATION TERMINATED June 30, 1980
Giles County-2 (06 smplr 2)	155b	35 17 05	86 54 11	244	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
					01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 155a. The second sampler was removed after one year, this ADS number DISCONTINUED.
EPA-IV (13)								
Center Hill	264a				00	8/82	9/83	Samples analyzed by RTI
					01	10/83		Samples analyzed by Global Geochem after 10/1/83
Texas (48)								
NADP (01)								
Forest Seed Ctr (453800)	254a	31 33 38	94 51 39	84	00	8/81		
K-Bar (450425)	070a	29 18 07	103 10 38	1056	00	4/80		

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Longview (452180)	282a	32 22 53	94 42 49	107	00	6/82		
Victoria (455350)	071a	28 50 43	96 55 12	31	00	4/80		
UAPSP (08)								
Marshall (17)	247a	32 39 58	94 25 06	81	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
					01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
					02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
Utah (49)								
NADP (01)								
Cedar Mt (460280)	069a	39 10 15	110 37 05	2356	00	5/81		
Vermont (50)								
NADP (01)								
Bennington (470100)	249a	42 52 34	73 09 48	305	00	4/81		
UAPSP (08)								
Underhill Center (20)	248a	44 31 42	72 52 08	442	00	10/81	12/81	Operated under normal UAPSP sampling protocol in last quarter of 1981
					01	1/82	12/82	UAPSP sampling protocol expanded to include NITRITE in CY 82
					02	1/83		Discontinued analysis of NITRITE, otherwise no change in protocol
Virginia (51)								
NADP (01)								
Big Meadows (482890)	250a	38 30 51	78 25 45	1047	00	5/81		
Horton Station (481300)	073a	37 20 06	80 33 28	1051	00	7/78		
MAP3s/PCN (06)								
Virginia (4)	072a	38 02 23	78 32 31	172	00	12/76	8/77	This MAP3S/PCN site started operation with the Battelle Northwest collector, surface area = 490 sq cm.
					01	8/77	9/77	Analysis method changed starting 4-aug-77. NH4 changed from Colorimetry to Ion Chromatography. NA and K changed from Flame Emission Spectrophy to Ion Chromatography.
					02	9/77	3/81	Analysis method changed in September 77. CA and MG changed from Flame Emission Spectrometry to Flame Atomic Absorbtion on 9/14/77. SO4 changed from Colimetry to Colimetry with field fixation on 9/6/77.
					03	4/81		Sample collection instrument changed from Battelle Northwest to Aerochem Metrics model 302-A2 with serface area = 640 sq cm.
Washington (53)								
NADP (01)								
Olympic Nat. Park (491410)	074a	47 51 36	123 55 57	176	00	5/80		

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
West Virginia (54)								
NADP (01)								
Parsons (501860)	075a	39 05 23	79 39 44	305	00	7/78		
EPRI-SURE (10)								
Lewisburg (09)	158a	37 50 50	80 25 00	701	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
					01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 158b.
					02	1/80	3/81	Starting 1/1/80 only one sampler in operation at this EPRI/SURE site STATION TERMINATED March 31, 1981
Lewisburg-2 (09 smplr 2)	158b	37 50 50	80 25 00	701	00	8/78	12/78	Start up phase for this EPRI/SURE site DO NOT USE DATA
					01	1/79	12/79	EPRI/SURE operation in CY 1979 with co-located samplers at this site. See 158a. The second sampler was removed after one year, this ADS number DISCONTINUED.
Wisconsin (55)								
NADP (01)								
Lake Dubay (512800)	283a	44 39 53	89 39 08	2113	00	6/82		
Spooner (513700)	077a	45 49 21	91 52 30	331	00	6/80		
Trout Lake (513640)	076a	46 03 09	89 39 11	501	00	1/80		
GLAD (14)								
Cornucopia (510180001)	322a	46 51 44	91 08 13	195	00	2/81		
Green Bay (510360001)	323a	44 31 47	87 55 11	201	00	3/81		
Manitowoc (513600001)	324a	44 03 56	87 39 23	189	00	7/81		
Milwaukee (512200035)	325a	43 04 31	87 53 02	205	00	3/81		
Wyoming (56)								
NADP (01)								
Newcastle (520820)	255a	43 52 24	104 11 32	1466	00	8/81		
Pinedale (520680)	284a	42 55 44	109 47 12	2388	00	1/82		
Yellowstone (520860)	078a	44 55 02	110 25 13	1912	00	6/80		
American Samoa (60)								
NADP (01)								
American Samoa (530190)	172a	14 15 08	170 33 48	73	00	5/80		
Alberta (80)								
CANSAP (05)								
Cononation (04 030)	084a	52 04 00	111 27 00	791	00	4/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Edson (04 010)	088a	53 35 00	116 27 00	925	00	1/74	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Fort McMurray (04 000)	092a	56 39 00	111 13 00	369	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Lethbridge (04 040)	107a	49 38 13	112 47 16	913	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Rocky Mtn House (04 020)	134a	52 23 00	114 55 00	988	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
British Columbia (81)								
CANSAP (05)								
Fort Nelson (03 000)	093a	58 50 00	122 36 00	925	00	6/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Fort St. John (03 010)	096a	56 14 00	120 44 00	695	00	6/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Kelowna (03 070)	104a	49 58 00	119 23 00	430	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Port Hardy (03 040)	114a	50 41 00	127 22 00	22	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Prince George (03 030)	115a	53 53 00	122 40 00	691	00	4/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Puntzi Mountain (03 080)	286a	52 07 00	124 05 00	911	00	4/74	1/77	Sampler is either Sangamo model A or B
Revelstoke (03 050)	133a	50 58 00	118 11 00	443	00	9/79	1/80	Upgrade to Sangamo model C in early 1979
					01	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Terrace (03 020)	124a	54 28 00	128 35 00	217	00	4/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Vancouver (03 060)	128a	49 11 00	123 10 00	2	00	7/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Manitoba (82)								
CANSAP (05)								
Bissett (06 030)	080a	51 02 00	95 40 00	258	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Churchill (06 000)	083a	58 45 00	94 04 00	29	00	6/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Dauphin (06 020)	086a	51 06 00	100 03 00	305	00	4/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
The Pas (06 010)	125a	53 58 00	101 06 00	273	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
New Brunswick (83)								
CANSAP (05)								
Acadia Fes (09 010)	090a	46 00 00	66 22 00	61	00	11/79	1/80	Sangamo model C.
					01	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Charlo (09 000)	081a	48 00 00	66 20 00	38	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
St. John (09 020)	119a	45 19 00	65 53 00	109	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Newfoundland (84)								
CANSAP (05)								
Gander (12 010)	097a	48 57 00	54 34 00	151	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Goose (12 000)	098a	53 19 00	60 25 00	36	00	7/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Stephenville (12 020)	123a	48 32 00	58 33 00	26	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
APN (09)								
Baie d'Espoir (12 030)	145a	47 59 00	55 48 00	23	00	11/81		This APN site started operation with the Sangamo model C collector.
Northwest Territories (85)								
CANSAP (05)								
Fort Reliance (01 020)	094a	62 43 00	109 10 00	164	00	7/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Fort Simpson (01 030)	095a	61 45 00	121 14 00	169	00	1/74	8/78	NOT SHURE OF HISTORY IN THIS TIME PERIOD
Hay River (01 040)	099a	60 50 00	115 47 00	166	00	2/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Inuvik (01 010)	101a	68 18 00	133 29 00	68	00	6/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Mould Bay (01 000)	089a	76 14 00	119 20 00	15	00	1/75	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Nova Scotia (86)								
CANSAP (05)								
Kejimkujik (10 020)	103a	44 25 58	65 12 20	152	00	6/78	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80	5/83	On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Sable Island (10 010)	117a	43 56 00	60 01 00	4	00	3/75	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Shelburne (10 030)	121a	43 43 00	65 15 00	30	00	4/75	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Truro (10 000)	127a	45 22 00	63 16 00	40	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
APN (09)								
Kejimkujik (10 019)	103b	44 25 58	65 12 20	152	00	5/79		This APN site started operation with the Sangamo model C collector.
Ontario (07)								
CANSAP (05)								
Armstrong (07 140)	287a	50 17 00	88 54 00	323	00	2/74	11/76	Sampler is either Sangamo model A or B
Atikokan (07 050)	079a	48 45 00	91 37 00	393	00	4/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Dorset (07 060)	087a	45 13 00	78 56 00	319	00	7/79	1/80	Upgrade to Sangamo model C in early 1979
					01	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
ELA (07 023)	135a	49 40 00	93 43 00	368	00	8/79	1/80	Upgrade to Sangamo model C in early 1979
					01	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Harrow (07 120)	100a	42 02 00	82 54 00	191	00	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Kapuskasing (07 030)	102a	49 24 00	82 26 00	227	00	10/79	1/80	Upgrade to Sangamo model C in early 1979
					01	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Kingston (07 070)	106a	44 13 00	76 36 00	92	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Moosonee (07 010)	109a	51 16 00	80 39 00	10	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Mount Forest (07 090)	110a	43 59 29	80 44 46	410	00	7/73	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Peterborough (07 080)	112a	44 14 00	78 21 00	191	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Pickle Lake (07 020)	113a	51 28 00	90 12 00	369	00	2/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Simcoe (07 110)	122a	42 51 00	80 16 00	241	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Trout Lake (07 000)	126a	53 50 00	89 52 00	220	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Wawa (07 130)	129a	47 58 00	84 47 00	287	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	9/79	NOT SURE OF HISTORY IN THIS TIME PERIOD
Windsor (07 150)	131a	42 16 00	82 58 00	190	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	11/79	NOT SURE OF HISTORY IN THIS TIME PERIOD
APIOS-D (07)								
Balsam Lake (3031)	225a	44 37 35	78 51 22	259	00	11/80	2/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					01	2/81	5/81	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					02	5/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					03	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					04	5/82		Warm weather collector and gauge
Charleston Lake (4011)	227a	44 29 54	76 02 30	92	00	1/81	5/81	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					01	5/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					02	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					03	4/82		Warm weather collector and gauge

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Dorset (3011)	087b	45 13 23	78 55 49	320	00	7/80	1/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					01	1/81	5/81	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					02	5/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					03	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					04	4/82		Warm weather collector and gauge
Fernberg (6051)	231[illegible]	47 56 51	91 29 26	506	00	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					01	5/82		Warm weather collector and gauge
Forbes Twsp. (6081)	234a	48 34 50	89 38 56	324	00	9/81	10/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					01	10/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					02	5/82		Warm weather collector and gauge
Graham Lake (4031)	229a	44 35 22	75 51 44	130	00	10/80	2/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					01	2/81	5/81	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					02	5/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					03	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					04	5/82		Warm weather collector and gauge
Lac La Croix (6061)	208b	48 21 14	92 12 32	368	00	9/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					01	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					02	5/82		Warm weather collector and gauge
Longwoods (1011)	143b	42 53 02	81 28 50	239	00	7/80	1/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					01	1/81	5/81	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					02	5/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					03	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					04	5/82		Warm weather collector and gauge
Melborne (1021)	221a	42 47 15	81 33 23	213	00	11/80	2/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					01	2/81	5/81	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					02	5/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					03	12/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					04	5/82		Warm weather collector and gauge

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Nithgrove (3021)	224a	45 12 01	79 04 14	335	00	1/81	5/81	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					01	5/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					02	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					03	4/82		Warm weather collector and gauge
North Easthope (1031)	222a	43 24 21	80 53 35	375	00	11/80	1/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					01	1/81	5/81	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					02	5/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					03	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					04	5/82		Warm weather collector and gauge
Quetico Centre (6071)	233a	48 24 44	91 12 08	420	00	10/81	5/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					01	5/82		Warm weather collector and gauge
Railton (4021)	228a	44 22 34	76 35 33	137	00	7/80	1/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					01	1/81	5/81	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					02	5/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					03	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					04	5/82		Warm weather collector and gauge
Raven Lake (3041)	226a	44 36 40	78 54 43	274	00	2/81	5/81	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					01	5/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					03	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					04	5/82		Warm weather collector and gauge
Wellesly (2011)	223a	43 28 13	80 45 35	344	00	1/81	5/81	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					01	5/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					02	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					03	5/82		Warm weather collector and gauge
Whitman Creek (4041)	230a	44 29 07	76 49 19	137	00	10/80	11/80	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					01	11/80	5/81	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					02	5/81	11/81	Warm weather collector = Aerochem Metrics 301 with standard rain gauge.
					03	11/81	4/82	Cold weather collector = SES bulk sampler and Nipher-shielded snow gague.
					04	5/82		Warm weather collector and gauge

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
APN (09)								
Algoma (07 054)	140a	47 06 00	84 06 00	9999	00	9/78		This APN site started operation with the Sangamo model C collector.
Chalk River (07 056)	141a	46 06 00	77 24 00	122	00	11/78	3/79	Sampler is either Sangamo model A or B
					01	3/79		Upgrade to Sangamo model C in early 1979
ELA (07 024)	135b	49 40 00	93 43 00	368	00	11/78	3/79	Sampler is either Sangamo model A or B
					01	3/79		Upgrade to Sangamo model C in early 1979
Long Point (07 094)	142a	42 60 00	80 50 00	175	00	11/78		This APN site started operation with the Sangamo model C collector.
Longwoods (07 100)	143a	42 53 00	81 29 00	239	00	12/82		This APN site started operation with the Sangamo model C collector.
APIOS-C (12)								
Alvinston (1081)	180a	42 49 36	81 50 04	221	00	9/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Attawapiskat (5081)	202a	52 56 00	82 24 00	9	00	9/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Bear Island (5041)	198a	46 58 22	80 04 40	305	00	5/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Campbellford (3081)	189a	44 17 28	77 47 33	175	00	9/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Colchester (1041)	176a	41 59 15	82 55 41	183	00	9/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982

ADS sites, sorted by STATE or PROVINCE

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE			LONGITUDE			ELEV	ADS rev num	REV START	REV END	OPERATING HISTORY
		d	m	s	d	m	s	m				
Coldwater (3101)	190a	44	37	31	79	32	08	280	00	8/81	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Dalhousie Mills (4071)	193a	45	19	00	74	28	13	69	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Dorion (6011)	204a	48	50	33	88	36	45	244	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Dorset (3011)	087c	45	13	26	78	55	52	320	00	5/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Ear Falls (6031)	206a	50	38	31	93	13	13	350	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Experimental Lake (6091)	210a	49	39	22	93	43	28	123	00	10/81	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Golden Lake (4081)	194a	45	36	48	77	12	03	160	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982

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Gowganda (5061)	200a	47 39 04	80 46 32	343	00	7/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Huron Park (1191)	183a	43 17 28	81 30 03	250	00	10/81	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Kaladar (4051)	191a	44 41 31	77 09 18	244	00	9/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Killarney (5021)	196a	45 59 26	81 29 18	183	00	5/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Lac La Croix (6061)	208a	48 21 14	92 12 32	368	00	9/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Mattawa (5031)	197a	46 16 45	78 49 19	198	00	8/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
McKellar (5011)	195a	45 30 57	79 55 19	244	00	8/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982

ADS sites, sorted by STATE or PROVINCE

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d	m	s	LONGITUDE d	m	s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Merlin (1051)	177a	42	14	47	82	13	30	191	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Milton (3051)	186a	43	31	05	79	55	54	221	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Moonbeam (5071)	201a	49	19	16	82	08	46	244	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Nakina (6021)	205a	50	10	38	86	42	40	320	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Palmerson (1101)	182a	43	48	19	80	54	12	389	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Pickle Lake (6041)	207a	51	27	41	90	12	04	360	00	7/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Port Stanley (1061)	178a	42	40	22	81	09	55	213	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE			LONGITUDE			ELEV	ADS rev num	REV START	REV END	OPERATING HISTORY
		d	m	s	d	m	s	m				
Quetico Centre (6071)	209a	48	44	24	91	12	08	420	00	11/81	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Ramsey (5051)	199a	47	26	33	82	20	14	427	00	5/80	12/81	Sample collected on last working day of eacn month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Shallow Lake (1091)	181a	44	34	54	81	05	24	229	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Smith's Falls (4061)	192a	44	56	41	75	57	48	122	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Uxbridge (3061)	187a	44	12	46	79	12	38	244	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Waterloo (2021)	184a	43	28	39	80	35	09	343	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Whitney (5091)	203a	45	32	21	78	15	35	412	00	9/80	12/81	Sample collected on last working day of each month.
									01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
									02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982

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Wilberforce (3071)	188a	45 00 54	78 12 58	396	00	9/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Wilkesport (1071)	179a	42 42 11	82 21 13	183	00	9/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Winisk (6101)	211a	55 12 00	85 08 00	9	00	9/80	12/81	Sample collected on last working day of each month.
					01	1/82	10/82	Samples collected every 28 days (tuesday to tuesday) starting 1/5/82 at 8AM local time.
					02	11/82		food grade polyethylene/nylon laminate collection bags replaced polyethylene bags in November, 1982
Quebec (89)								
CANSAP (05)								
Chibougamau (08 030)	082a	49 49 00	74 25 00	402	00	4/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Fort Chimo (08 000)	091a	58 06 00	68 25 00	36	00	4/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Maniwaki (08 050)	108a	46 23 00	75 58 00	170	00	5/75	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Nitchequon (08 010)	111a	53 12 00	70 54 00	536	00	4/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Quebec City (08 040)	116a	46 48 00	71 24 00	73	00	4/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.

STATE NETWORK SITE NAME	ADS SITE IDENT	LATITUDE d m s	LONGITUDE d m s	ELEV m	ADS rev num	REV START	REV END	OPERATING HISTORY
Sept Isles (08 020)	120a	50 13 00	66 15 00	55	00	4/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
St. Hubert (08 060)	118a	45 31 00	73 25 00	27	00	4/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
APN (09)								
Montmorency (08 034)	144a	47 19 00	71 09 00	640	00	12/80		This APN site strated operation with the Sangamo model C collector.
Saskatchewan (90)								
CANSAP (05)								
Cree Lake (05 000)	085a	57 21 00	107 08 00	499	00	5/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Kindersley (05 010)	105a	51 28 00	109 10 00	683	00	4/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
Wynyard (05 020)	132a	51 46 00	104 12 00	561	00	2/74	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.
APN (09)								
Cree Lake (05 001)	085b	57 21 00	107 08 00	499	00	7/82		Upgrade to Sangamo model C in early 1979
Yukon Territory (91)								
CANSAP (05)								
Whitehorse (02 000)	130a	60 43 00	135 04 00	703	00	7/77	3/79	Sampler is either Sangamo model A or B
					01	3/79	1/80	Upgrade to Sangamo model C in early 1979
					02	1/80		On 1/1/80, the use of a single bucket for entire month was DISCONTINUED. Subsequent samples are composited in the field.

APPENDIX D

INPUT DATA TRANSFER FORMATS FOR CONTRIBUTING NETWORKS

Networks contributing precipitation chemistry sample data to ADS are required to furnish specific information and follow specific tape formats (see Section 3). Appendix D contains a series of forms that networks must use in this transfer process. A blank form and an example completed form are included. Three forms are currently used:

- Network definition form (Figure D.1, D.2)
- Chemical analysis protocol form (Figure D.3, D.4)
- Site definition form (Figure D.5, D.6)

In addition specific tape formats (Figure D.7, D.8) for transferring sample data are included.

Sample Data Updates

ADS will accept data tapes as formatted by computer centers associated with the following networks:

NADP and NTN
EPRI and UAPSP
MAP3S/PCN
CANSAP, APN and CAPMON
APIOS-D and APIOS-C

Other networks submitting data to the ADS may choose one of two tape formats for transferring data to ADS:

FORMAT A - single record (Figure D.7)
FORMAT B - card image (Figure D.8)

The single record input format consists of a 200 byte header and a fixed number of 50 byte component blocks per sample. Thus a measurement of 10 components will produce one 700 byte record. If this is not easy to produce, the card image format may be chosen. It requires three 80 column records to define the sample and one 80 column record for each component. Thus our example of 10 components would produce thirteen 80 column records per sample.

Format A, the single record format, is preferred over the card image.

On the format descriptions some fields are labeled as MANDATORY. These fields must contain data or the information on the tape will not be included in ADS. The other fields are optional, but it is strongly urged that they contain valid data.

Several areas of flexibility are included in these formats. The station ID is an 18 byte field which can be filled with whatever is meaningful. The ADS-IDENT could be placed in this field. The ADS-IDENT of the station is not required as long as some translation scheme is provided. Some people may wish to use the SAROAD identifiers for the station ID.

There is ample space in these formats for comments about the sample and/or each component. Use of the ADS note codes is suggested, however any form of notation will be accepted and translated to ADS note codes.

Fields containing data values should include the decimal point. Component results must be expressed in ADS standard units (i.e., μ mole/l, etc.). Missing data should contain an obvious code such as -9999 and a definition of missing data must accompany the tape. The data should be written in ASCII code on 9-track, 1/2 inch tape at 800, 1600 or 6250 bpi. Format A tapes should be written unblocked. Format B tapes should be blocked so that each block contains one sample, i.e., 13 records per block for our example of 10 components per sample.

ADS NETWORK DEFINITION

Network name ______________________________ ADS Network Code __________

Network manager: phone ___ ___ ___

Address

Purpose of network: ☐ Regional ☐ Source directed ☐ Other

Network objective:

Sample Collection Procedures

Type of Samples ☐ Wet ☐ Dry ☐ Bulk ☐ Other __________

Frequency of Samples ☐ Event ☐ Daily ☐ Week ☐ 4 Week

☐ Month ☐ Other ____________________

Sampling Device ______________________ (if more than one explain below)

Area of Sampler __________ sq cm

Type of Rain Gage ______________

Brief summary of sampling collection procedures, storage conditions and shipment to lab (attach network operation protocol or use back of this form:

Sample Analysis Procedures Analysis Laboratory ____________________

Components to be analyzed in order of priority:

1	______________	10	______________
2	______________	11	______________
3	______________	12	______________
4	______________	13	______________
5	______________	14	______________
6	______________	15	______________
7	______________	16	______________
8	______________	17	______________
9	______________	18	______________

FIGURE D.1. ADS Network Definition

ADS NETWORK DEFINITION

Network name *NEWNET*

ADS Network Code ________

Network manager: *C. R. Watson*

Address
Battelle-Northwest
P.O. Box 999
Richland, WA 99352

phone *509-376-2227*

Purpose of network: ☒ Regional ☐ Source directed ☐ Other

Network objective: *Investigate long term trends in wet deposition in eastern Washington*

Sample Collection Procedures

Type of Samples ☒ Wet ☐ Dry ☐ Bulk ☐ Other ________

Frequency of Samples ☐ Event ☒ Daily ☐ Week ☐ 4 Week ☐ Month ☐ Other ________

Sampling Device *Aerochem Metrics Model 3* (if more than one explain below)

Area of Sampler *678.87* sq cm

Type of Rain Gage *Belfort Universal Rain Gage 5-780*

Brief summary of sampling collection procedures, storage conditions and shipment to lab (attach network operation protocol or use back of this form:

See enclosed document on network protocol.

Sample Analysis Procedures

Analysis Laboratory *Battelle-Analytical Precipitation Chemistry Lab*

Components to be analyzed in order of priority:

1 *pH*
2 *SO4*
3 *NO3*
4 *NH4*
5 *Cl*
6 *Na*
7 *K*
8 *Ca*
9 *Mg*
10 *Conductivity*
11 ________
12 ________
13 ________
14 ________
15 ________
16 ________
17 ________
18 ________

FIGURE D.2. Example of Filled Out Network Definition Form

ADS ANALYSIS PROTOCOL

Network manager:

Please complete one form for each component.

Network ______________________________

Effective dates __/__/__ to __/__/__

Analysis Laboratory: ____________________

Component: ____________________________

Generic Method: ________________________

Instrument used: _______________________

Detection limit _________________ units _________________

Attach a description of the analysis technique or briefly describe it in the space below (continue on back if necessary):

FIGURE D.3. ADS Analysis Protocol Form

ADS ANALYSIS PROTOCOL

Network manager:

Please complete one form for each component.

Network *NEWNET*

Effective dates *01/01/84* to / / *Present*

Analysis Laboratory: *Battelle-Analytical Precipitation Chemistry Lab*

Component: *Calcium ion (dissolved)*

Generic Method: *Atomic Absorption*

Instrument used: *Perkin Elmer 372*

Detection limit *0.05* units *mg/l*

Attach a description of the analysis technique or briefly describe it in the space below (continue on back if necessary):

$LaCl_3$ is added to a filtrate aliquot which is then aspirated. The absorbance is measured spectrophotometrically at 422.7 nm and compared with those of standard calcium solutions and a reagent blank.

FIGURE D.4. Example of Filled Out Analysis Protocol Form

ADS SITE DEFINITION

Network Manager - Complete one form per site.

Network ____________________ Network's Site ID |_|_|_|_|_|_|_|_|_|_|

ADS Ident ______________
(to be supplied by ADS administrator)

Site operation start date __/__/__ (mo da yr)

Site operation stop date __/__/__ (mo da yr)

SAROAD Ident (if known) |_|_|_| State |_|_|_|_|_| Area |_|_|_|_| Site |_|_| Agency |_|_|_| Project

Short Site Name |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Full Site Name ____

County __________________________

State/Province __________________________

Location:

Latitude |_|_|_| deg |_|_|_| min |_|_|_| sec

Longitude |_|_|_|_| deg |_|_|_| min |_|_|_| sec

Elevation |_|_|_|_|_| in meters of site

Height |_|_|_.|_|_| in meters of sampler from ground

Time Zone ______

Protocol

☐ Yes - this site follows standard network protocol

☐ No - this is a non-standard site as explained below

FIGURE D.5. Site Definition Form

ADS SITE DEFINITION

Network Manager - Complete one form per site.

Network *NEWNET*

Network's Site ID |*V*|*E*|*R*|*N*|*I*|*T*|*A*| | | |

ADS Ident ____________
(to be supplied by ADS administrator)

Site operation start date *01*/*20*/*84* (mo/da/yr)

Site operation stop date __/__/__ (mo/da/yr)

SAROAD Ident (if known): State |*4*|*9*| Area |*1*|*4*|*1*|*2*| Site |*1*|*2*|*3*| Agency |*J*| Project |*A*|*B*|

Short Site Name |*V*|*E*|*R*|*N*|*I*|*T*|*A*| | | | | | | | | | | | |

Full Site Name *Vernita Wildlife Refuge*

County *Benton*

State/Province *Washington*

Location:

Latitude	*46* deg	*31* min	*22* sec
Longitude	*121* deg	*02* min	*14* sec

Elevation | | |*5*|*7*| in meters of site

Height | | |*1*|.|*0*| in meters of sampler from ground

Time Zone *Pacific*

Protocol
☒ Yes - this site follows standard network protocol
☐ No - this is a non-standard site as explained below

FIGURE D.6. Example of Filled Out Site Definition Form

Header (200 bytes)

Field Number	Field	Position	Picture	Comment
1	STATION-ID	1-18	X(18)	MANDATORY
2	REFERENCE-DATE	19-26	9(8)	MANDATORY
3	FILLER (Blank)	27-29	XXX	
4	SAMPLE-START	30-39	9(10)	
5	EVENT-START	40-49	9(10)	
6	EVENT-END	50-59	9(10)	
7	SAMPLE-END	60-69	9(10)	
8	AT-LAB-DATE	70-75	9(6)	
9	QC-FLAG	76	X	
10	ACTUAL-SAMPLE-PERIOD	77	X	
11	PRECIP-OCCUR	78	X	MANDATORY
12	PRECIP-TYPE	79	X	MANDATORY
13	DEPOSITION-TYPE	80	X	MANDATORY
14	MET-PROTOCOL	81	X	
15	DAYS-IN-SAMPLE	82-83	99	
16	HOURS-OF-RAIN	84-87	9(4)	
17	LID-OPENINGS	88-89	99	
18	RAIN-GAGE-MM	90-99	X(10)	MANDATORY
19	SAMPLE-VOLUME-ML	100-109	X(10)	MANDATORY
20	SAMPLE-VOLUME-ERROR	110-119	X(10)	
21	PREDICTED-DEPTH-MM	120-129	X(10)	
22	SAMPLE-VOLUME-ERROR-FLAG	130	X	REQUIRED IF FIELD 19 NOT BLANK
23	FIELD-INITIALS	131-133	XXX	
24	NUMBER-COMPONENTS-MEASURED	134-135	99	
25	NUMBER-MISSING-COMPONENTS	136-137	99	
26	REASON-NO-COMPONENTS	138	X	
27	NUMBER-COMPONENT-BUCKETS	139-140	99	MANDATORY
28	NOTES	141-200	X(59)	

COMPONENT BUCKET OCCURS NUMBER-COMPONENT-BUCKETS TIMES (50 bytes)

r-1	COMPONENT-NUM	201	99	MANDATORY
r-2	TYPE-RESULT-FLAG	203	X	MANDATORY
r-3	DATE-ANALYZED	204-209	9(6)	
r-4	ANALYST-INITIALS	210-212	XXX	
r-5	RESULT-NOTE	213	X	
r-6	RESULT-FLAG	214	X	MANDATORY
r-7	RESULT-VALUE	215-224	X(10)	MANDATORY
r-8	ERROR-FLAG	225	X	REQUIRED IF r9 NOT BLANK
r-9	ERROR-VALUE	226-235	X(10)	
r-10	RESULT-COMMENTS	236-250	X(15)	

FIGURE D.7. Input Format A

Field Number	Field	Position	Picture	Comment
CARD 1				
1-1	CARD-NUMBER	1-2	99	"01"
1-2	STATION-ID	3-20	X(18)	MANDATORY
1-3	REFERENCE-DATE	21-28	9(8)	MANDATORY
1-4	BLANK	29	X	
1-5	SAMPLE-START	30-39	9(10)	
1-6	EVENT-START	40-49	9(10)	
1-7	EVENT-END	50-59	9(10)	
1-8	SAMPLE-END	60-69	9(10)	
1-9	AT-LAB-DATE	70-75	9(6)	
1-10	QC-FLAG	76	X	
1-11	ACTUAL-SAMPLE-PERIOD	77	X	
1-12	PRECIP-OCCUR	78	X	MANDATORY
1-13	PRECIP-TYPE	79	X	MANDATORY
1-14	BLANK	80	X	
CARD 2				
2-1	CARD-NUMBER	1-2	99	"02"
2-2	STATION-ID	3-20	X(18)	MANDATORY
2-3	REFERENCE-DATE	21-28	9(8)	MANDATORY
2-4	BLANK	29	X	
2-5	DEPOSITION-TYPE	30	X	MANDATORY
2-6	MET-PROTOCOL	31	X	
2-7	DAYS-IN-SAMPLE	32-33	99	
2-8	HOURS-OF-RAIN	34-37	9(4)	
2-9	LID-OPENINGS	38-39	99	
2-10	RAIN-GAGE-MM	40-49	X(10)	MANDATORY
2-11	SAMPLE-VOLUME-ML	50-59	X(10)	MANDATORY
2-12	SAMPLE-VOLUME-ERROR	60-69	X(10)	
2-13	PREDICTED-DEPTH-MM	70-79	X(10)	
2-14	SAMPLE-VOLUME-ERROR-FLAG	80	X	REQUIRED IF FIELD 2-12 NOT BLANK
CARD 3				
3-1	CARD-NUMBER	1-2	99	"03"
3-2	STATION-ID	3-20	X(18)	MANDATORY
3-3	REFERENCE-DATE	21-28	9(8)	MANDATORY
3-4	FIELD-INITIALS	29-31	XXX	
3-5	NUMBER-COMPONENTS-MEASURED	32-33	99	
3-6	NUMBER-MISSING-COMPONENTS	34-35	99	
3-7	REASON-NO-COMPONENT	36	X	
3-8	NUMBER-COMPONENT-CARDS	37-38	99	MANDATORY
3-9	NOTES	39-80	X(42)	

FIGURE D.8 Input Format B

Field Number	Field	Position	Picture	Comment
CARD 4-n	(repeated NUMBER-COMPONENT-CARDS TIMES)			
r-1	CARD-NUMBER	1-2	99	"04","05",etc.
r-2	STATION-ID	3-20	X(18)	MANDATORY
r-3	REFERENCE-DATE	21-28	9(8)	MANDATORY
r-4	BLANK	29	X	
r-5	COMPONENT-NUM	30-31	99	MANDATORY
r-6	TYPE-RESULTS-FLAG	32	X	MANDATORY
r-7	DATE-ANALYZED	33-38	9(6)	
r-8	ANALYSTS-INITIALS	39-41	XXX	
r-9	RESULT-NOTE	42	X	
r-10	RESULT-FLAG	43	X	MANDATORY
r-11	RESULT-VALUE	44-53	X(10)	MANDATORY
r-12	ERROR-FLAG	54	X	REQUIRED IF r-13 NOT BLANK
r-13	ERROR-VALUE	55-64	X(10)	
r-14	RESULT-COMMENTS	65-80	X(16)	

FIGURE D.8 Input Format B (Cont.)

APPENDIX E

STANDARD ADS REPORTS

This appendix describes printed reports available from ADS. Each report is illustrated with one or more annotated example pages. The purpose of the appendix is two-fold: 1) users of the reports will find detailed explanations of the rows and columns here, and 2) requesters of reports should study this appendix prior to making the request.

Standard printed reports available are continually being developed and modified. This appendix will be supplemented with new report formats as they are developed.

The reports are described briefly at the beginning of this appendix, then each report is illustrated by one or more tables and/or figures. For convenience the reports are numbered consecutively.

REPORT 1

Title: "ADS Sites Sorted by ADS Identification"

Definition: Page E.4

Example: Page E.5

Purpose: Report 1 is the basic site inventory presented in ADS identification order. This report is an inventory of all site descriptions. It may describe sites and/or time periods at sites for which no data is available. Report 1 is included as Appendix C of this report. It will be part of each annual report.

Description: One line is printed per sampler. Only a few fields from the site record are shown to improve readability.

REPORT 2

Title: "ADS Sites, Sorted by STATE or PROVINCE"

Definition: Page E.6

Example: Page E.7

Purpose: Report 2 is an inventory of sites within each state or province. It is included in Appendix C of this report and will be part of the annual reports. This report helps one decide which sites and which time periods are available for a given region of North America.

Description: Report 2 defines each site by name, latitude, longitude and elevation, and includes one line per site protocol revision showing protocol dates and the explanation of the revision from the SITE-HISTORY file.

REPORT 3

Title: "ADS Site Description and History"

Definition: See ADS Site and Site History record definitions.

Example: Page E.8

Purpose: Report 3 summarizes the site definition and history of changes in sampling protocol on one page per site. This report accompanies all retrievals of site specific information.

Description: The report is in list format, with each row identified by the field names in the record definitions.

REPORT 4

Title: "ADS Individual Sample Data"

Definition: See ADS Site and Sample record definitions.

Example: Page E.9

Purpose: Report 4 lists individual sample results. The report is intended for use by those who do not wish to process ADS data on their computer and/or those who know that the quantity of data in their retrieval will be manageable.

Description: The page heading shows the site location and network. The sample period, precip type, rain gage and sample volume fields are listed for each sample. If there are no component results available, the REASON-NO-COMPONENTS code is printed. If there are notes associated with the sample their ADS codes are printed. This is followed by one line per component analyzed. This report is available in any of the unit conversions shown in Table B.7.

REPORT 5

Title: "Monthly Concentration and Deposition"

Definition: Page E.10

Example: Page E.11

Purpose: Report 5 provides selected component measurements and their monthly totals. It is intended for researchers who prefer to scrutinize the individual samples and perform their own screening.

Description: This report groups all measurements for a month, showing date, max note codes, rain gage value, three concentrations (SO4, NO3 and NH4) and three depositions (SO4, NO3 and NH4). At the bottom of each month the total monthly deposition is printed.

REPORT 6

Title: "Smoothed Concentration and Deposition"

Definition: Page E.12

Example: Page E.13

Purpose: Report 6 provides monthly precipitation weighted concentrations and average depositions for one to three components at a given site or group of sites. Quarterly summaries are available as well as the monthly summary described here. Each monthly value is based on the previous, current and next month sample concentrations. These concentrations are used in the precipitation weighted concentration average and smoothed monthly deposition. It is recommended that this report be used in conjunction with careful sample selection screening.

Description: This report fits on 8.5 by 11 paper. It prints one line per time period (month or quarter). The site identification is in the heading of each page. The example on page E.13 is for illustration only; this report format is not yet generalized.

DEFINITION OF REPORT 1

Column	Column Head	Explanation
1	ADS SITE IDENT	The first four characters of the six character site ident are printed. The first three numbers identify a geographic location, the fourth character (the letter a, b, c, ...) identifies colocated samplers at a site.
2	NET WORK	The network which operates the site is identified. See Table B.2 for more information about networks.
3	NET SITE IDENT	The network's 10 character number or name for the site.
4	SITE NAME	The short SITE-NAME is shown here concatenated with the state/province and, for locations outside the USA, the country.
5	LATITUDE d m s	The latitude of the site is shown in degrees, minutes and seconds. (All latitudes are North except site 172.)
6	LONGITUDE d m s	The longitude of the site is shown in degrees, minutes and seconds. All longitudes are West.
7	ELEVATION (meters)	The elevation of the site in meters above sea level is shown. If the elevation has not been reported "9999" is shown.
8	FIRST ACTIVE DATE	The date on which the network started operating the site. This is not necessarily the date of the first sample. In fact, there may not be any samples in the data base for some of the sites described in this report.

EXAMPLE REPORT 1

```
                                        ADS sites, sorted by ADS identification                       23-Jul-1984
                                                                                                      Page 1
 ADS               NET                                                                                     FIRST
SITE   NET         SITE                                                LATITUDE  LONGITUDE ELEVATION     ACTIVE
IDENT  WORK        IDENT                     SITE NAME                  d  m  s    d  m  s (meters)       DATE

001a   NADP        020390      Mt. Mckinley Park, Alaska               63 43 27  148 57 55     649    Jun 17, 1980
002a   NADP        030180      Tombstone, Arizona                      31 42 30  110 03 24    1398    Mar 27, 1979
003a   NADP        030620      Organ Pipe Mon., Arizona                31 57 02  112 48 00     506    Apr 15, 1980
004a   NADP        042700      Fayetteville, Arkansas                  36 06 02   94 10 24     391    May 13, 1980
006a   NADP        053460      Bishop, California                      37 22 15  118 21 59    1252    Apr 15, 1980
007a   NADP        054540      Hopland (Ukiah), California             39 00 17  123 05 05     253    Oct  3, 1979
008a   NADP        057550      Sequoia Nat. Park, California           36 34 09  118 46 40    1856    Jul  8, 1980
009a   NADP        058840      Davis, California                       38 32 07  121 46 30      18    Oct 17, 1978
010a   NADP        061910      Rocky Mt. Nat Park, Colorado            40 21 52  105 33 37    2369    May 29, 1980
011a   NADP        062120      Manitou, Colorado                       39 06 04  105 05 31    2362    Oct 17, 1978
012a   NADP        062220      Pawnee, Colorado                        40 48 23  104 45 15    1641    May 22, 1979
013a   MAP3s/PCN   7           Lewes, Delaware                         38 46 00   75 00 00       0    Feb 28, 1978
014a   NADP        100020      Austin-Cary Forest, Florida             29 45 37   82 11 56      46    Oct 10, 1978
015a   NADP        100360      Bradford Forest, Florida                29 58 29   82 11 53      44    Oct 10, 1978
016a   NADP        101190      Everglades Nat. Pa, Florida             25 23 40   80 41 45       2    Jun 17, 1980
017a   NADP        114140      Georgia Station, Georgia                33 10 40   84 24 22     270    Oct  3, 1978
018a   NADP        120080      Mauna Loa, Hawaii                       19 32 22  155 34 45    3426    Jun 10, 1980
019a   NADP        130340      Craters of Moon, Idaho                  43 27 48  113 33 31    1806    Aug 22, 1980
020a   NADP        141160      Bondville, Illinois                     40 03 12   88 22 19     212    Feb 27, 1979
020b   MAP3s/PCN   5           Illinois, Illinois                      40 03 12   88 22 19     212    Nov 19, 1977
021a   NADP        141980      Argonne, Illinois                       41 42 04   87 59 43     229    Mar 11, 1980
022a   NADP        143580      Southern Ill U, Illinois                37 42 36   89 16 08     146    Jul 31, 1979
023a   NADP        146340      Dixon Springs, Illinois                 37 26 08   88 40 19     161    Jan 30, 1979
024a   NADP        141800      NIARC, Illinois                         41 50 29   88 51 04     265    Jan  1, 1981
025a   NADP        153420      Indiana Dunes, Indiana                  41 37 57   87 05 16     208    Jul 15, 1980
026a   NADP        232570      Isle Royal Park, Michigan               47 54 43   89 09 10     209    Aug 12, 1980
027a   NADP        381120      Vines Hill, Oregon                      43 53 57  117 25 37     904    Jul 15, 1980
028a   NADP        441190      Elkmont, Tennessee                      35 39 52   83 35 25     640    Aug 12, 1980
029a   NADP        061530      Mesa Verde, Colorado                    37 11 56  108 29 26    2172    Apr 28, 1981
030a   NADP        200935      Greenville Station, Maine               45 29 23   69 39 52     322    Nov 20, 1979
031a   NADP        230920      Douglas Lake, Michigan                  45 33 40   84 40 42     233    Jul  3, 1979
031b   CANSAP      13 020      Pellston, Michigan                      45 33 40   84 40 42     233    Jul  1, 1979
032a   NADP        232660      Kellogg, Michigan                       42 24 37   85 23 34     288    Jun 26, 1979
033a   NADP        235340      Wellston, Michigan                      44 13 28   85 49 07     292    Oct 10, 1978
034a   NADP        241660      Marcell, Minnesota                      47 31 52   93 28 07     431    Jul  6, 1978
035a   NADP        242720      Lamberton, Minnesota                    44 14 14   95 18 02     343    Jan  2, 1979
036a   NADP        251460      Meridian, Mississippi                   32 20 04   88 44 42      89    Apr 15, 1980
037a   NADP        270570      Glacier Nat Park, Montana               48 30 37  113 59 44     968    Jun  3, 1980
037b   CANSAP      13 010      Glacier Nat Park, Montana               48 30 37  113 59 44     968    Jun  1, 1980
038a   NADP        281520      Mead, Nebraska                          41 09 11   96 29 34     352    Jul 25, 1978
039a   NADP        300240      Hubbard Brook, New Hampshire            43 56 35   71 42 12     250    Jul 25, 1978
040a   NADP        330860      Aurora, New York                        42 44 02   76 39 35     249    Apr 17, 1979
041a   NADP        331000      Chautauqua, New York                    42 17 56   79 23 47     488    Jun 10, 1980
042a   NADP        331220      Knobit, New York                        42 22 41   73 30 10     406    Jan  2, 1980
043a   MAP3s/PCN   1           Whiteface, New York                     44 23 26   73 51 34     610    Oct 10, 1976
044a   MAP3s/PCN   2           Ithaca, New York                        42 24 03   76 39 12     509    Oct 25, 1976
045a   NADP        335140      Stilwell Lake, New York                 41 21 00   74 02 22     186    Jun 26, 1979
046a   NADP        335240      Bennett Bridge, New York                43 31 34   75 56 50     245    Jun 10, 1980
047a   NADP        336500      Jasper, New York                        42 06 22   77 32 08     634    Feb 19, 1980
048a   MAP3s/PCN   6           Brookhaven, New York                    40 52 00   72 53 00      25    Feb  8, 1978
049a   NADP        340320      Lewiston, North Carolina                36 07 40   77 10 30      26    Oct 31, 1978
050a   NADP        342500      Coweeta, North Carolina                 35 03 38   83 25 50     686    Jul  5, 1978
051a   NADP        343460      Piedmont Station, North Carolina        35 41 48   80 37 22     221    Oct 17, 1978
052a   NADP        343560      Clinton Station, North Carolina         35 01 26   78 16 45      47    Oct 24, 1978
```

DEFINITION OF REPORT 2

Column	Column Head	Explanation
1	None	The name of the State or Province is printed as a group heading offset to the left. The ADS numeric code is shown parenthetically.
2	NONE	The network which operates the site is identified as a group heading. See Table B.2 for more information about the network. The ADS network number is shown parenthetically.
3	NONE	The network's name of the site is shown as a group heading followed by the network's site number.
4	ADS SITE IDENT	The first four characters of the six character site ident are printed. The first three numbers identify a geographic location. The fourth character (the letter a, b, c, ...) identifies colocated samplers at a site.
5	LATITUDE d m s	The North latitude of the site (except for site 172 which is South) in degrees, minutes and seconds.
6	LONGITUDE d m s	The West longitude of the site in degrees, minutes and seconds.
7	ELEV M	The elevation, in meters, of the site above sea level.
8	ADS rev num	These are the right most two digits of the six character ADS-IDENT. Each revision in protocol for a site causes a separate partial line on the left of the report.
9	REV START	This is the month and year of the start of this particular protocol revision.
10	REV END	This is the month and year of the end of protocol revision (9/99 indicates protocol currently in effect).
11	OPERATING HISTORY	This is the narrative explanation of revision from the SITE-HISTORY file. If it is blank, no site specific information is available.

EXAMPLE REPORT 2

```
                              ADS sites, sorted by STATE or PROVINCE                                          23-Jul-1984
                                                                                                              Page 1

STATE                                ADS                              ADS
   NETWORK                           SITE  LATITUDE LONGITUDE  ELEV rev  REV   REV
      SITE NAME                      IDENT d  m  s   d  m  s    m   num START  END              OPERATING HISTORY

Alabama (1)
   UAPSP (08)
      Selma (15)                     235a  32 28 25  87 05 03    42 00  10/81 12/81 Operated under normal UAPSP sampling protocol
                                                                                    in last quarter of 1981.  Co-located sampler
                                                                                    at this site, see 235b.
                                                                    01   1/82 12/82 UAPSP sampling protocol expanded to include
                                                                                    NITRITE in CY 82  See co-located sampler
                                                                                    235b.
                                                                    02   1/83       Discontinued analysis of NITRITE, otherwise
                                                                                    no change in protocol  See co-located sampler
                                                                                    235b.
      Selma-2 (15 smplr 2)           235b  32 28 25  87 05 03    42 00  10/81 12/81 Operated under normal UAPSP sampling protocol
                                                                                    in last quarter of 1981  See co-located
                                                                                    sampler 235a.
                                                                    01   1/82 12/82 UAPSP sampling protocol expanded to include
                                                                                    NITRITE in CY 82  See co-located sampler
                                                                                    235a.
                                                                    02   1/83  1/83 Discontinued analysis of NITRITE on 1/1/83.
                                                                                    Discontinued operation of co-located sampler
                                                                                    on 1/21/83.  This ADS ident TERMINATED.
   EPA-IV (13)
      Tallassee                      259a                           00   3/82  9/83 Samples analyzed by RTI
                                                                    01  10/83       Samples analyzed by Global Geochem after
                                                                                    10/1/83

Alaska (2)
   NADP (01)
      Mt. Mckinley Park (020390)     001a  63 43 27 148 57 55   649 00   6/80

Arizona (4)
   NADP (01)
      Grand Canyon (030370)          068a  36 04 18 112 09 11  2152 00   8/81
      Oliver Knoll (030360)          054a  33 04 17 109 51 53  1173 00   8/81
      Organ Pipe Mon. (030620)       003a  31 57 02 112 48 00   506 00   4/80
      Tombstone (030180)             002a  31 42 30 110 03 24  1398 00   3/79
      Warren 2WSW (040260)           268a  33 36 15  92 06 02    78 00   5/82

Arkansas (5)
   NADP (01)
      Buffalo River (041620)         269a  36 05 20  92 32 58   265 00   1/82
      Fayetteville (042700)          004a  36 06 02  94 10 24   391 00   5/80

California (6)
   NADP (01)
      Bishop (053460)                006a  37 22 15 118 21 59  1252 00   4/80       This site is part of the WMO network.
      Channel Islands (058500)       159a  34 00 57 119 21 43    49 00   7/80
      Davis (058840)                 009a  38 32 07 121 46 30    18 00  10/78
      Hopland (Ukiah) (054540)       007a  39 00 17 123 05 05   253 00  10/79
      Sequoia Nat. Park (057550)     008a  36 34 09 118 46 40  1856 00   7/80
```

EXAMPLE REPORT 3

```
     ADS Site Description and History

ADS_IDENT                 : 156a00
SAROAD_IDENT              : 150060201201
FIPS_STATE                : 18
STATE_NAME                : Indiana
FIPS_COUNTY               :  69
NET_CODE                  : 10
NET_SITE                  : 07 smplr 1
NET_SITE_NAME             : Roanoke
SITE_NAME                 : Fort Wayne
N_OR_S                    : N
LAT                       : 41 02 39
E_OR_W                    : W
LONG                      :  85 19 08
ELEVATION_METERS          : 0244
TIME_ZONE                 : 05
REVISION_START_DATE       :  8/01/78
REVISION_END_DATE         : 12//31/78
MONITOR_PURPOSE           : R
SAMPLING_PERIOD           : D
INSTRUMENT_CODE           : A1
INSTRUMENT_AREA_SQ_CM     :  678.87
METERS_ABOVE_GROUND       :   1.5
LAB_CODE                  : REMS
NUM_COMPONENTS            : 17

    REVISION_NUMBER          : 00
    REVISION_START_DATE      :  1-Aug-1978
    REVISION_END_DATE        : 31-Dec-1978
    EXPLANATION_OF_REVISION  : Start up phase for this EPRI/SURE site DO NOT USE
                               DATA

    REVISION_NUMBER          : 01
    REVISION_START_DATE      :  1-Jan-1979
    REVISION_END_DATE        : 31-Dec-1979
    EXPLANATION_OF_REVISION  : EPRI/SURE operation in CY 1979 with co-located
                               samplers at this site.  See 156b.

    REVISION_NUMBER          : 02
    REVISION_START_DATE      :  1-Jan-1980
    REVISION_END_DATE        : 30-Sep-1981
    EXPLANATION_OF_REVISION  : Starting 1/1/80 only one sampler in operation at
                               this EPRI/SURE site

    REVISION_NUMBER          : 03
    REVISION_START_DATE      :  1-Oct-1981
    REVISION_END_DATE        : 31-Dec-1981
    EXPLANATION_OF_REVISION  : Transfered operation from EPRI/SURE to UAPSPS and
                               operated under normal UAPSPS protocol in last
                               quarter of 1981.

    REVISION_NUMBER          : 04
    REVISION_START_DATE      :  1-Jan-1982
    REVISION_END_DATE        : 31-Dec-1982
    EXPLANATION_OF_REVISION  : UAPSPS one year effort to analyze NITRITE in 1982,
                               otherwise protocol remained the same.

    REVISION_NUMBER          : 05
    REVISION_START_DATE      :  1-Jan-1983
    REVISION_END_DATE        :  9-Sep-1999
    EXPLANATION_OF_REVISION  : Discontinued analysis of NITRITE, otherwise no
                               change in protocol
```

EXAMPLE REPORT 4

```
                                                      ADS Individual Sample Date                            15-Mar-1984
          006a00 NADP    053460001 0 01    Bishop              California    N  37 22 15  W 118 21 59        Page 1

                        DAYS             RAIN    SAMP    REAS
  START      STOP        IN      P       GAGE    VOL     NO                      COMPONENT                COMP     COMP
  DATE       DATE      SAMPLE    T        MM      ML     COMP     NOTES           NAME                    VALUE    UNITS


81-12-29   82-01-05      7       U      25.65   1836.6           B48B50B55      Conductivity                3.800  umoh/cm
                                                                                pH                          5.390  pH units
                                                                                Sulfate                     0.143  mg of S/l
                                                                                Nitrate                     0.061  mg of N/l
                                                                                Chloride                    0.020  mg/l
                                                                                Phosphate                   0.003  mg/l
                                                                                Ammonium                    0.016  mg of N/l
                                                                                Sodium                      0.098  mg/l
                                                                                Potassium                   0.010  mg/l
                                                                                Calcium                <    0.070  mg/l
                                                                                Magnesium                   0.010  mg/l

82-01-05   82-01-12      7       U       4.83    168.4     I     A10B44B47B50
                                                                 B53

82-01-12   82-01-19      7       U                 2.0     T     B47B50B55A01

82-01-19   82-01-26      7       U                         X     A07B49B52B55

82-01-26   82-02-02      7       U                         N     A06B47B50B54
                                                                 A12

82-02-02   82-02-09      7       U                         N     A06B47B50B55
                                                                 A12

82-02-09   82-02-16      7       U       0.51     19.4           B47B50B55C06   Conductivity               19.800  umoh/cm
                                                                                pH                          6.100  pH units
                                                                                Sulfate                     1.073  mg of S/l
                                                                                Nitrate                     0.221  mg of N/l
                                                                                Chloride                    1.070  mg/l
                                                                                Phosphate                   0.013  mg/l
                                                                                Ammonium                    0.381  mg of N/l
                                                                                Sodium                      0.845  mg/l
                                                                                Potassium                   0.197  mg/l
                                                                                Calcium                <    1.170  mg/l
                                                                                Magnesium                   0.145  mg/l

82-02-16   82-02-23      7       U                         N     A06B47B50B55
                                                                 A12

82-02-23   82-03-02      7       U                         N     A06B47B50B55
                                                                 A12

82-03-02   82-03-09      7       U                         N     A06B47B50B55
                                                                 A12
```

DEFINITION OF REPORT 5

The heading is self-explanatory.

Column	Column Head	Explanation
1	DATE	The start date of the (weekly) sample.
2	TIME	The start time of the sample.
3	MAX NOTE CODE	A single letter, defined in the footnote to each page.
4	RAIN GAGE (mm)	The depth in mm recorded by the standard rain gage. If missing it is set to zero for this report and flagged with a "M".
5	S04 μ mole per liter	The concentration of S04 expressed in μ mole per liter. If missing it is set to zero for this report and flagged with a "M".
6	N03 μ mole per liter	See column 5.
7	NH4 μ mole per liter	See column 5.
8	S04 DEP mg per sq m	The S04 deposition is the product of column 4 times column 5 converted to mg per sq m
9	N03 DEP mg per sq m	See column 8.
10	NH4 DEP mg per sq m	See column 8.

EXAMPLE REPORT 5

```
                                  Monthly Concentration and Deposition                                28-Mar-1984
                                                                                                      Page 1
                      ADS site identification: 001a00   Latitude: 63 43 27  Longitude: 148 57 55

                                SO4       NO3       NH4                         SO4 DEP    NO3 DEP    NH4 DEP
              MAX     RAIN      umole     umole     umole                       mg         mg         mg
              NOTE    GAGE      per       per       per                         per        per        per
 DATE    TIME CODE    (mm)      liter     liter     liter                       sq m       sq m       sq m

12/29/81       C       10.16   3.02      1.94      2.22                         2.95       1.22       0.41

                                    TOTALS FOR  1 EVENTS IN 12/81               2.95       1.22       0.41


                                   TOTALS FOR   1 EVENTS IN 1981                2.95       1.22       0.41

1/5/82         C   M   0.00 M     0  M     0  M     0                           0.00       0.00       0.00
1/12/82        B       1.27   7.92      .32       1.11                          0.97       0.03       0.03
1/19/82        B   M   0.00 M     0  M     0  M     0                           0.00       0.00       0.00
1/26/82        B   M   0.00 M     0  M     0  M     0                           0.00       0.00       0.00

                                    TOTALS FOR  4 EVENTS IN  1/82               0.97       0.03       0.03

2/2/82         B      15.24   6.04      4.52      1.11                          8.84       4.27       0.30
2/9/82         B   M   0.00 M     0  M     0  M     0                           0.00       0.00       0.00
2/16/82        B   M   0.00 M     0  M     0  M     0                           0.00       0.00       0.00
2/23/82        B   M   0.00 M     0  M     0  M     0                           0.00       0.00       0.00

                                    TOTALS FOR  4 EVENTS IN  2/82               8.84       4.27       0.30

3/2/82         B       2.54   5.94      10.16     4.44                          1.45       1.60       0.20
3/9/82         B       1.27   9.69      18.55     17.22                         1.18       1.46       0.39
3/16/82        B       6.35   6.88      5.65      8.33                          4.19       2.22       0.95
3/23/82        B       2.54   7.40      5.16      1.67                          1.80       0.81       0.08
3/30/82        B   M   0.00 M     0  M     0  M     0                           0.00       0.00       0.00

                                    TOTALS FOR  5 EVENTS IN  3/82               8.63       6.10       1.63

4/6/82         B       5.84   8.75      3.87      1.11                          4.91       1.40       0.12
4/13/82        B       8.38   1.46      1.77      1.11                          1.17       0.92       0.17
4/20/82        B   M   0.00 M     0  M     0  M     0                           0.00       0.00       0.00
4/27/82        C       1.27   8.65      6.45      3.33                          1.05       0.51       0.08

                                    TOTALS FOR  4 EVENTS IN  4/82               7.13       2.83       0.36

5/4/82         B       0.76   6.67      3.06      1.11                          0.49       0.14       0.02
5/11/82        B       2.03   14.27     .32       1.11                          2.78       0.04       0.04
5/18/82        B       1.27   10.94     .32       1.11                          1.33       0.03       0.03
5/25/82        B       2.54   4.69      3.87      1.11                          1.14       0.61       0.05

                                    TOTALS FOR  4 EVENTS IN  5/82               5.74       0.82       0.13

6/1/82         B       3.81   3.02      .32       1.11                          1.10       0.08       0.08
6/8/82         B       2.54   4.58      1.45      1.11                          1.12       0.23       0.05
6/15/82        B      69.85   1.04     M     0    1.11                          6.97       0.00       1.40

MAX NOTE CODES: A = 1 or more value not reported, B = remark about quality, C = remark about quantity, D = some value is suspect
M = data not reported, < = less than detection limit. NOTE, these missing values are set to zero and counted in number of events
```

DEFINITION OF REPORT 6

Column	Column Head	Explanation
1	DATE	The month and year for the center of this three month period.
2	Month after 1/1/76	The cumulative number of months in the time series.
3,4,5,6	<---3 month value--->	This heading spans four columns.
3,4	Precip.	This heading spans two columns.
3	N	The number of precipitation values in this three month period.
4	mm	The total millimeters of precipitation in this three month period.
5,6	S04	This heading spans two columns.
5	N	The number of S04 values in this three month period.
6	mg/l	The three month concentration value - the sum of the individual S04 values weighted by the individual precipitation values divided by the sum of the precipitation values expressed as mg/l.
7	Mean S04 kg/ha	The average deposition - the sum of the precipitation weighted individual S04 concentrations multiplied by the total precipitation is divided by 3 and expressed as kg/ha.
8,9	N03	See Column 5,6
8	N	See Column 5
9	mg/l	See Column 6
10	Mean N03 kg/ha	See Column 7
11,12	NH4	See Column 5,6
11	N	See Column 5
12	mg/l	See Column 6
13	Mean NH4 kg/ha	See Column 7

EXAMPLE REPORT 6

SMOOTHED DEPOSITION AND CONCENTRATION
OF SO4, NO3, AND NH4
MAP3S/PCN SITE AT WHITFACE

	month	<---3 month	values-->			mean	3 month		mean	3 month		mean
	after	precip		SO4		SO4	NO3		NO3	NH4		NH4
DATE	1/1/76	N	mm.	N	mg/l	kg/ha	N	mg/l	kg/ha	N	mg/l	kg/ha
11/76	11	9	132.15	8	1.21	0.53	8	1.45	0.64	8	0.17	0.08
12/76	12	7	79.08	6	1.46	0.39	6	1.30	0.34	6	0.18	0.05
1/77	13	11	78.53	11	1.27	0.33	11	1.92	0.50	6	0.05	0.01
2/77	14	20	145.78	20	1.54	0.75	20	1.88	0.91	10	0.12	0.06
3/77	15	26	239.67	26	1.80	1.44	26	1.59	1.27	16	0.18	0.14
4/77	16	24	236.55	24	2.20	1.73	24	1.51	1.19	19	0.24	0.19
5/77	17	22	221.03	22	2.84	2.10	22	1.49	1.10	22	0.29	0.22
6/77	18	21	183.77	21	3.80	2.33	21	1.66	1.02	21	0.31	0.19
7/77	19	26	332.33	26	3.21	3.56	26	1.33	1.47	26	0.24	0.26
8/77	20	24	396.84	22	2.83	3.74	23	1.28	1.70	23	0.23	0.30
9/77	21	22	515.21	20	2.20	3.77	21	1.29	2.22	21	0.19	0.33
10/77	22	19	463.99	17	1.63	2.52	18	1.25	1.93	18	0.16	0.25
11/77	23	18	412.04	18	1.21	1.67	18	1.18	1.63	18	0.11	0.15
12/77	24	18	336.54	18	0.85	0.95	18	0.92	1.04	18	0.07	0.08
1/78	25	12	222.87	11	0.70	0.52	11	0.89	0.66	11	0.05	0.04
2/78	26	11	161.87	10	0.89	0.48	10	1.15	0.62	10	0.10	0.05
3/78	27	13	126.76	12	2.48	1.05	12	1.97	0.83	12	0.25	0.10
4/78	28	16	148.38	16	2.60	1.29	16	1.94	0.96	16	0.26	0.13
5/78	29	17	192.23	17	3.14	2.01	17	1.76	1.12	17	0.32	0.20
6/78	30	15	162.02	15	3.54	1.91	15	1.75	0.95	15	0.36	0.20
7/78	31	18	206.95	17	4.72	3.25	17	2.08	1.44	17	0.46	0.32
8/78	32	18	207.97	16	4.41	3.06	16	1.93	1.34	16	0.56	0.39
9/78	33	19	276.75	17	3.35	3.09	17	1.61	1.49	17	0.40	0.37
10/78	34	15	219.79	14	2.38	1.74	14	1.44	1.06	14	0.37	0.27
11/78	35	12	238.37	12	1.78	1.41	12	1.35	1.07	12	0.19	0.15
12/78	36	10	188.58	10	1.32	0.83	10	1.41	0.89	10	0.18	0.11
1/79	37	10	231.23	10	1.25	0.96	10	1.22	0.94	10	0.14	0.11
2/79	38	10	173.88	10	1.38	0.80	10	1.41	0.82	10	0.15	0.09
3/79	39	9	185.30	9	1.76	1.09	9	1.37	0.85	9	0.21	0.13
4/79	40	10	224.90	10	2.01	1.51	10	1.48	1.11	10	0.26	0.19
5/79	41	10	225.10	10	2.38	1.79	10	1.40	1.05	10	0.26	0.20
6/79	42	10	204.08	10	2.79	1.89	10	1.43	0.97	10	0.28	0.19
7/79	43	13	193.67	12	2.82	1.82	12	1.14	0.74	12	0.24	0.16
8/79	44	15	245.51	14	2.03	1.67	14	0.80	0.65	14	0.19	0.16
9/79	45	16	269.60	13	1.82	1.63	13	0.70	0.63	13	0.16	0.15
10/79	46	14	254.09	10	1.38	1.17	10	0.66	0.56	10	0.11	0.10
11/79	47	15	209.33	11	1.47	1.02	11	1.15	0.80	11	0.15	0.11
12/79	48	16	151.48	11	1.12	0.57	11	1.26	0.63	11	0.14	0.07

APPENDIX F

ADS OUTPUT TAPE FORMAT

Data tape copies of ADS samples will be produced on nine track tape at the requester's choice of 800, 1600 or 6250 bpi in either ASCII or EBCDIC code. The records are fixed length, but the length depends on the number of components requested. Each record contains 194 bytes of sample identification and as many 26 byte component data buckets as requested. Thus, the record length for 1 component equals 220 bytes and for 2, 3 and 20 components, 246, 272 and 714 bytes, respectively.

Before requesting a data tape, check with your computer center regarding your ability to handle the ADS format. Some mini computers are limited as to the maximum record length they can process. For example, PDP 11's cannot handle more than 512 bytes per record; the maximum number of components a PDP 11 user should request is 12 (506 bytes).

Each record contains three parts. The first major group, SAMPLE-DESCRIPTION, is 192 bytes long; it contains the entire SAMPLE-DEFINITION-RECORD. The next two bytes, COMPONENTS-PER-RECORD, indicate the number of component data buckets that follow. The last major group, COMPONENT-RESULTS, is 26 bytes long, and contains the RESULTS portion of the COMPONENT-ANALYZED-RECORD. There is one COMPONENT-RESULTS group for each component requested in the data retrieval. The complete record description is shown in Table F.1.

NOTE - Table F.1 describes the locations of fields in the records; the body of this report describes the contents of the fields.

TABLE F.1. ADS-OUTPUT-RECORD

FIELD NAME	PICTURE	LOCATION
1 ADS-OUTPUT-RECORD.		
2 SAMPLE-DEFINITION.		
3 SAMPLE-KEY.		
4 ADS-IDENT	X(6)	1-6
4 REF-DATE	X(8)	7-14
3 DATES.		
4 SAMPLE-START.		
5 START-YR	XX.	15-16
5 START-MON	XX.	17-18
5 START-DAY	XX.	19-20
5 START-HOUR	XX.	21-22
5 START-MIN	XX.	23-24
4 EVENT-START.		
5 E-START-YR	XX.	25-26
5 E-START-MON	XX.	27-28
5 E-START-DAY	XX.	29-30
5 E-START-HOUR	XX.	31-32
5 E-START-MIN	XX.	33-34
4 EVENT-END.		
5 E-END-YR	XX.	35-36
5 E-END-MON	XX.	37-38
5 E-END-DAY	XX.	39-40
5 E-END-HOUR	XX.	41-42
5 E-END-MIN	XX.	43-44
4 SAMPLE-END.		
5 END-YR	XX.	45-46
5 END-MON	XX.	47-48
5 END-DAY	XX.	49-50
5 END-HOUR	XX.	51-52
5 END-MIN	XX.	53-54
4 AT-LAB-DATE.		
5 LAB-YR	XX.	55-56
5 LAB-MON	XX.	57-58
5 LAB-DAY	XX.	59-60
3 SAMPLE-DESCRIPTION.		
4 QC-FLAG	X.	61
4 ACTUAL-SAMPLE-PERIOD	X.	62
4 PRECIP-OCCUR	X.	63
4 PRECIP-TYPE	X.	64
4 DEPOSITION-TYPE	X.	65
4 MET-PROTOCOL	X.	66
4 DAYS-IN-SAMPLE	XX.	67-68
4 HOURS-OF-RAIN	X(4).	69-72
4 LID-OPENINGS	XX.	73-74

TABLE F.1. ADS-OUTPUT-RECORD (Cont.)

FIELD NAME	PICTURE	LOCATION
3 SAMPLE-QUANTITY.		
4 RAIN-GAGE-MM	X(8).	75-82
4 SAMPLE-VOLUME-ML	X(8).	83-90
4 SAMPLE-VOLUME-ERROR-CODE	X.	91
4 SAMPLE-VOLUME-ERROR	X(8).	92-99
4 PREDICTED-VOLUME-ML	X(8).	100-107
4 PREDICTED-DEPTH-MM	X(8).	108-115
4 SAMPLING-EFFICIENCY	X(8).	116-123
3 COMPONENT-SUMMARY.		
4 NUM-MEASURED	XX.	124-125
4 NUM-MISSING	XX.	126-127
4 REASON-NO-COMPONENTS	X.	128
3 OBSERVATIONS.		
4 FIELD-INITIALS	X(3).	129-131
4 MAX-NOTE	X.	132
4 NOTES	X(60).	133-192
2 COMPONENTS-PER-RECORD	XX.	193-194
2 COMPONENT-RESULTS OCCURS COMPONENTS-PER-RECORD TIMES.		
3 COMPONENT-ID.		
4 COMPONENT-NUM	XX.	r1-r2
3 RESULTS.		
4 TYPE-RESULTS-FLAG	X.	r3
4 DATE-ANALYZED.		
5 ANAL-YR	XX.	r4-r5
5 ANAL-MO	XX.	r6-r7
5 ANAL-DA	XX.	r8-r9
4 ANAL-INITIALS	X(3).	r10-r12
4 RESULT-NOTE	X.	r13
4 RESULT-FLAG	X.	r14
4 RESULT-VALUE	X(6).	r15-r20
4 ERROR-FLAG	X.	r21
4 ERROR-VALUE	X(5).	r22-r26

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